

**EXAMINING THE SIGNIFICANCE OF *MODUS OPERANDI* INFORMATION IN
COPPER THEFT INVESTIGATION**

by

ANDRÉ SAREL LIEBENBERG

Submitted in fulfilment of the requirements

for the degree of

MAGISTER TECHNOLOGIAE

in the subject

FORENSIC INVESTIGATION

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: PROF JG VAN GRAAN

FEBRUARY 2018

DECLARATION

I, André Sarel Liebenberg, hereby declare that “Examining the significance of *modus operandi* information in copper theft investigation”, submitted in accordance with the requirements for the degree of Magister Technologiae, in the subject Forensic Investigation, is my own work and has not previously been submitted to another institution of higher education. All sources used in this research paper have been appropriately cited or quoted, and are indicated and acknowledged in the comprehensive list of references.

A handwritten signature in black ink, appearing to read 'A. S. Liebenberg', enclosed within a large, loopy oval shape.

Signed:

André Sarel Liebenberg

Student number: 37557203

Date: 21 March 2018

DEDICATION

Grant me the opportunity to dedicate this research output to the following heroes and icons that made a dynamic impact on my personal development and drive to develop myself and other human beings.

- President Nelson Rolihlahla Mandela
- Professor Moses Montesh
- Brigadier Ronnie Beyl

ACKNOWLEDGEMENTS

This study is a product of the synergistic working relationship between many pro-active creative minds. It began in 1974, when I started my calling as a community server. My passion to develop myself and any other human being was the main driver during this journey in God's plan for me.

I herewith wish to acknowledge the following individuals who contributed to this study:

- Most of all I want to acknowledge this research output to my supervisor Professor Johan van Graan, who started this journey with me. He received a rough diamond and was tasked to develop and cut this diamond to perfection. During the cutting of the diamond, I was molded and guided, while a healthy personal working relationship developed between us. Professor van Graan opened doors of opportunity for me at the right time, and strategically set objectives and goals for the development of this project and my academic development with it.
- Brigadier BA Solucotho, who has always been there for me as a leader, commander, colleague and personal friend, and who introduced me to the Non-Ferrous Metal Crime Combating Committee and the industry at a national level. Thank you for opening doors for me at the National Joint Operational and Intelligence Structure (NatJOINTS), National Intelligence Co-ordinating Committee (NICOC) and the Hawks, which enhanced the competitive edge of this research.
- Brigadier Bert van der Walt, of the SAPS National Legal Services, for his slogan "Net voorwaarts, voorwaarts." Thank you for your support by helping me to develop a sound legal understanding of the issues related to my topic.
- The Hawks' office at national level, and the integration with NICOC, gave me a clear understanding of the value of the chain of evidence, as well as which objectives and strategies to follow.
- Colonel Sibanda and Captain Bailoy, who were part of the internal team at the national level during the two years focus on Section 28(1) and (2) of the Second-Hand Goods Act, with an integrated approach and checking of regular sellers. The value that the team added gave me a clear understanding of the syndicates involved in copper theft, and made a significant contribution to the successful conviction rates in copper theft cases.

- Colonel Gerhard Pretorius and Chris Wood who, during the co-ordination of data, enabled me to make a verified statement that copper theft needs to be treated as a more serious crime due to its impact on the economic environment of South Africa.
- My parents, Boet and Driek Liebenberg, for laying a good foundation during my early childhood and always being there to offer me moral support, and for their understanding.
- My in-laws, Jan and Nellie Calitz, specifically my mother-in-law, who taught me English language usage and grammar, as well as an effective and efficient writing style.
- Joan Liebenberg, my supporter, motivator and wife, as well as my children, Andre, Petro and Renaldo. Thank you for supporting me and experience the strength within myself for two years at a National level, in order to gain a better understanding of copper theft. This achievement would be impossible without your unconditional support during the late nights and many hours of hard work. I acknowledge all of them and dedicate this dissertation to them as a legacy.
- Frankie and Baby Liebenberg, who opened their doors for me to study in a conducive learning environment at their residence. I appreciate the moral support and space for quiet reflection you granted me during many late nights of studying.
- Flip Olivier, who provided technical support and advice on the relevant no men culture; I extend special thanks to you.
- Jomien Olivier, who was responsible for the professional typing – I extend a special thanks to you.
- Constable Tsepo Festus – Personal librarian for the college of law, always willing to supply me with endless resources in the form of literature available to him.
- Mrs Nancy Morkel for the language and technical editing of the dissertation; you made the content and context simple and clear so that it is interpreted and understood as designed.

- Each and everybody that supported me, respondents and specialists who unselfishly shared his or her experience and even recommendations to make this dissertation to perfection.

ABSTRACT

This study sought to examine the significance of *modus operandi* information in the investigation of copper theft. Data was collected by means of a literature study and individual semi-structured interviews conducted with detectives at the SAPS Philippi East, in the Nyanga policing cluster, in the Western Cape, to promote knowledge and understanding of the significance of *modus operandi* information in copper theft investigations. A comprehensive literature study, concerning the dynamics of *modus operandi* information in forensic investigation and copper theft in South Africa, was conducted.

From the results of this research, it appears that participants do realize the significance of *modus operandi* information in the investigation of copper theft. It is, however, evident that they do not optimally utilize *modus operandi* information regarding copper thieves as a result of limited experience, case docket overload, and the inaccessibility of available data – all of which inhibit the establishment of *modus operandi* information pertaining to copper thieves. Role-players in the copper theft investigation sphere isolate themselves from each other and do not share the available *modus operandi* information amongst each other; these results in a non-systematic integrated approach to copper theft investigation. The study identifies the challenges and shortcomings, experienced by detectives at SAPS Philippi East, which inhibit the optimal utilization of *modus operandi* information in the investigation of copper theft. The study then puts forward a set of recommendations that could assist the SAPS, the relevant parastatals and other role-players in enhancing the utilization of such information.

Key terms: *Modus operandi*, copper, theft, non-ferrous metal, information, essential infrastructure, South African Police Service.

LIST OF ABBREVIATIONS

BACSA	Business against Crime South Africa
CCTV	Closed Circuit Television
CDA	Copper Development Association Africa
COSATU	Congress of South African Trade Unions
CPA	Criminal Procedure Act
DA	Democratic Alliance
DTE	Data Terminal Equipment
ESKOM	Electricity Supply Commission
FBI	Federal Bureau of Investigation
FSL	Forensics Science Laboratory
GSR	Gunshot Residue
ICSG	International Copper Study Group
ISS	Institute for Security Studies
IQ	Intelligence Quotient
LME	London Metal Exchange
MO	<i>Modus operandi</i>
NatJOINTS	National Joint Operational and Intelligence Structure
NFMCCC	Non-Ferrous Metals Crime Combating Committee
NICB	National Insurance Crime Bureau
NICOC	National Intelligence Co-ordinating Committee
PSP	Physical Security Professional

SA	South Africa
SACCI	South African Chamber of Commerce and industry
SADC	South African Development Community
SAPS	South African Police Service
SARPA	Southern African Revenue Protection Association
SONA	State of the Nation Address
UK	United Kingdom
SOP	Standard Operating Protocol
UNISA	University of South Africa
US	United States

TABLE OF CONTENTS

DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMENTS	III
ABSTRACT	VI
LIST OF ABBREVIATIONS	VII
CHAPTER 1	1
GENERAL ORIENTATION.....	1
1.1 INTRODUCTION	1
1.2 PROBLEM STATEMENT	1
1.3 RESEARCH AIM.....	6
1.4 RESEARCH PURPOSE	7
1.5 RESEARCH QUESTION.....	7
1.6 KEY THEORETICAL CONCEPTS	7
1.6.1 <i>MODUS OPERANDI</i>	7
1.6.2 THEFT	8
1.6.3 COPPER.....	8
1.7 VALUE OF THE RESEARCH.....	8
1.8 DEMARCATION OF THE STUDY.....	9
1.9 RESEARCH APPROACH AND DESIGN.....	9
1.10 POPULATION AND SAMPLING PROCEDURE	10
1.11 DATA COLLECTION.....	10
1.11.1 SEMI-STRUCTURED INTERVIEWS	10
1.12 DATA ANALYSIS.....	11
1.13 METHODS TO ENSURE TRUSTWORTHINESS	12
1.14 ETHICAL CONSIDERATIONS	14
1.15 CONCLUSION.....	15
CHAPTER 2 AN OVERVIEW OF <i>MODUS OPERANDI</i> INFORMATION IN FORENSIC INVESTIGATION	16
2.1 INTRODUCTION	16
2.2 A BRIEF OVERVIEW OF THE LEGISLATIVE FRAMEWORK GOVERNING COPPER THEFT IN SOUTH AFRICA	16
2.2.1 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA, 1996.....	18
2.2.2 CRIMINAL MATTERS AMENDMENT ACT, 18 OF 2015	18
2.2.3 SECOND-HAND GOODS CONTROL ACT, 6 OF 2009	19
2.2.4 CRIMINAL PROCEDURE ACT, 51 OF 1977.....	20
2.2.4.1 BAIL RESTRICTION: SECTION 2.....	20
2.2.4.2 BAIL RESTRICTION: SECTION 4.....	20
2.3 THE VALUE OF <i>MODUS OPERANDI</i> INFORMATION.....	20

2.4	<i>MODUS OPERANDI</i> AS AN ELEMENT OF CRIMINALITY	24
2.5	FACTORS THAT CAN DETERMINE OR INFLUENCE <i>MODUS OPERANDI</i>.....	26
2.6	<i>MODUS OPERANDI</i> BEHAVIOUR BY SUSPECTS	31
2.7	CONCLUSION.....	33
	CHAPTER 3 AN OVERVIEW OF COPPER THEFT IN SOUTH AFRICA.....	34
3.1	INTRODUCTION	34
3.2	BRIEF OVERVIEW OF THE NATURE AND EXTENT OF COPPER THEFT IN SOUTH AFRICA	36
3.3	THE IMPACT OF COPPER THEFT IN SOUTH AFRICA	38
3.3.1	POLITICALLY	38
3.3.2	SOCIALLY	39
3.3.3	ECONOMICALLY	39
3.4	STRATEGIES TO INVESTIGATE COPPER THEFT IN SOUTH AFRICA.....	41
3.4.1	NON-INVASIVE DETECTION AND CHEMICAL MAPPING OF TRACE METAL RESIDUES ON THE SKIN	42
3.4.2	ANATOMY, GEOMETRIC MORPHOMETRIC (ELECTROCUTED BODIES DURING COPPER THEFT)	43
3.4.3	DESCRIPTION AND IDENTIFICATION OF STOLEN PROPERTY	44
3.4.4	BACK TO BASICS APPROACH.....	45
3.5	CONCLUSION.....	46
	CHAPTER 4 SUMMARY, RECOMMENDATIONS AND CONCLUSION.....	47
4.1	INTRODUCTION	47
4.2	SUMMARY.....	47
4.3	RECOMMENDATIONS	48
4.4	CONCLUSION.....	48
	LIST OF REFERENCES.....	50
APPENDIX A:	SAPS LETTER OF APPROVAL	56
APPENDIX B:	UNISA ETHICS APPROVAL	57
APPENDIX C:	CONFIRMATION LETTER: LANGUAGE EDITING.....	58

CHAPTER 1

GENERAL ORIENTATION

1.1 INTRODUCTION

Copper theft is a significant challenge globally. South Africa (SA) is currently experiencing a significant challenge in terms of the high number of copper theft incidents. The researcher is of the opinion that the significance of *modus operandi* (MO) information should be pro-actively and re-actively linked to the elements of crime in copper theft investigation, in order to ensure an effective and efficient conviction rate. The forensic investigator must understand the elements of MO and information with regard to the identification of the stolen property and its corresponding owner; this is especially important since parastatals lack the identification of stolen property and to confirm the owner of this property. Therefore, the forensic investigator must ensure that all the information and evidence gathered should be properly tested and proven stolen beyond a reasonable doubt, and that the particulars of ownership should be reasonably possibly true.

1.2 PROBLEM STATEMENT

Welman, Kruger and Mitchell (2005:13) believe that, in order to identify a research problem, the researcher must consider the literature and identify any gaps. These authors describe a problem statement as a clear description of the issue/s under investigation. It includes a vision, issue statement and the method used to solve the problem (De Vos, Strydom, Fouche & Delpont, 2012:108). Welman et al. (2005:2) further state that the aim of a research problem is to serve as the axle to keep the researcher focussed, balanced and to ensure an effective outcome.

According to Bennet and Hess (1981:161), factors to resolve criminal investigations are called solvability factors. One such a solvability factor is MO information. A feature of almost every modern society is the emergence of organised criminal enterprises, such as copper theft syndicates, who often transcend national boundaries and whose conduct involves some element of continuity (Burchell, 2006:116). Therefore, to facilitate improved investigations into copper theft, and to secure positive convictions, it is of utmost importance that the forensic investigator focuses on MO information to assist with the positive identification of copper theft syndicates and/or individual suspects. Du Plessis (1989:86) is of the opinion that the general evaluation of

crime, such as MO information, is valuable for identifying criminals; it is also of cardinal importance in investigations and crime prevention. The researcher concurs with Du Plessis (1989:86) and is of the opinion that the forensic investigator who investigates copper theft should be increasingly pro-active by making use of risk evaluation of the specific problem, thus optimally utilising MO information in copper theft investigations. In this study, the researcher will specifically explore the significance of MO information in relation to the investigation of copper theft.

According to Evans (2011), crime statistics on Welsh railways, for example, have indicated one conspicuous area of growth, that is, cable theft, which has escalated by 168% in the last year. However, Evans emphasises that Wales is not the only country in the United Kingdom (UK) that experienced significant challenges in copper theft. On the contrary, there is an epidemic of cable-related crimes across the UK's railway network, and it is not a problem restricted to the railway. Any industry that makes use of copper cabling is vulnerable, including electricity substations and building sites. The consequences of cable theft, in order to illegally obtain copper, can be serious and could result in rail disruptions, power outages, the loss of phone and internet services, and so forth.

Evans (2011) motivates the increase in copper theft as follows:

- The price of copper has escalated in the last two years, driven up by booms in construction and industrial investment in China and India.
- The cash price of copper on the London Metal Exchange (LME) was less than US \$3000 per tonne at the start of 2009. In 2011, it was more than US \$9000 per tonne and breached the US \$10 000 barrier earlier in 2011. For that kind of money, criminals will take risks, even with the knowledge of the life-threatening risks involved in stealing cables that could be carrying a live current.

Copper theft has also risen sharply in the United States of America (US) in recent years. In 2008, the Federal Bureau of Investigation (FBI) warned that copper thieves in the US were targeting electrical sub-stations, cellular towers, telephone landlines, railroads, water wells, construction sites and vacant homes. Despite the FBI's warning, figures from the National Insurance Crime Bureau (NICB) show that the number of reported copper thefts in the US more than doubled from 13 020 in 2006-2008, to 32 568 in 2010-2012. Copper has always been liable to this kind of predation since this metal has a relatively high value. It is also a metal that tends

to be used in quite a pure form; it can therefore be recycled easily. In fact, most of the copper in circulation in the world today has been recycled many times. Present day mining adds very little fresh material to global stocks. There is, therefore, a very active market for recycled copper into which criminals can leak stolen cabling (Evans, 2011).

From a South African perspective, Thelwell (2014) acknowledges a report by the South African Chamber of Commerce and Industry (SACCI) in which it was revealed that copper theft has increased by 26% in the past year. Thelwell further indicates the nature and extent of copper theft by reporting that “around 15 people were trapped under the rubble of a collapsed structure in Soweto after they allegedly tried to steal cables and metal from the building. In South Africa, scrap metal is often weighed for cash, leading people in dire straits to commit criminal and dangerous acts.

The background information provided by Thelwell (2014) further explains why copper is such an attractive metal for copper thieves. Since industrialisation in the late 1800's, copper has become vital in the construction of buildings and power generation because it is the best conductor of heat and electricity of all metals, apart from silver. The average home has 180kg of copper for electrical wiring, water pipes, and appliances, according to the Copper Development Association Africa (CDAA). Most copper in use, such as wiring and plumbing, will remain in use for more than half a century. Industrialization, and the building of infrastructure, relies on copper. As the Institute for Security Studies (ISS) points out, small handicraft outlets have been transformed into large factories with electricity; this has, in turn, created the need for copper-based railways for distribution and copper-based telephone systems for communications. Copper is widely used for industrialisation and infrastructure projects; because of this, it is often seen as a thermometer for the global economy. A decline in the price of copper indicates a decrease in the demand to build infrastructure, which does not bode well for the economy. In 1999, the price of copper hit a 60-year low as demand from post-industrial societies slowed, according to the Institute for Security Studies (ISS). However, in the last decade, the rapid industrialisation of China has once again spurred copper prices ahead, so as to reach an all-time high of just above \$10 000 a ton in February 2011. According to the latest figures from the International Copper Study Group (ICSG), China is by far the largest consumer of refined copper by accounting for approximately 40% of world demand. The demand for copper has created robust international trade, while the market for illicit copper is rising steadily.

Copper theft has been identified for research purposes since it is a major problem in SA. As stated by Business against Crime South Africa (BACSA), in their National Strategy and funding Proposal of 2012-2015, non-ferrous theft, which includes copper theft, has posed a serious threat to the SA economy for many years. These thefts also have a negative impact on the victims, not only financially through the need to replace the stolen material, but also through other consequential and associated losses. The theft of non-ferrous metals also has a negative impact on the private and public sectors; especially in situations in which there are consequential losses of availability of services, such as the loss of working telephone lines, electricity, and train services. The loss of these services has a negative impact on productivity and profit margins, although the exact total of financial losses suffered and the full extent of the impact on the country has not yet been determined.

According to BACSA, the SACCI has instituted a monthly barometer detailing the cost of copper theft to the nation. In this monthly barometer, it is reported that the cost of copper theft has increased to R9.5 million; however, SACCI hopes that improved policing will halt the increase in copper theft. In his State of the Nation Address (SONA) 2015, President Jacob Zuma also raised his concerns regarding the extent and impact of copper theft in the country, and stated that copper theft must be effectively addressed. The President specifically mentioned that copper theft has a negative influence on SA as a nation, while emphasising that copper theft is a major problem in the country.

Although copper theft is a countrywide problem, Gauteng has become the basis for copper theft syndicates. This, in turn, affects all the other provinces. In 2006, Pieter van Dalen, a City of Cape Town Councillor, started addressing copper theft and initiated a specialised crime-fighting unit known as the “Copperheads”. This anti-copper theft unit was highly successful and brought the theft of copper down from R22 million to just under R500 000 during van Dalen’s term of office. However, in May 2007, a request for the appointment of a Commission of Enquiry into copper theft was put forward by Mr Van Dalen. According to Feni (2007:6), millions of rand in damage was caused in the Western Cape. The biggest losses were suffered by the electricity utility, Electricity Supply Commission (Eskom), and telecommunications provider, Telkom, as well as the SA Railway Services. The Local Government of Cape Town, together with the SACCI, requested that the Western Cape Government appoint a Commission of Enquiry and a task team to assess the significance of MO as a technique during the investigation of copper theft in the Western Cape and the export of copper to other countries. It was noted that R77 million

worth of copper was exported to China, although there are no copper mines anywhere in the Western Cape Province (Feni, 2007:6). It is further evident, from official SAPS statistics, that there are significant challenges related to the successful investigation of copper theft at the SAPS Philippi East, in the Nyanga Cluster, as an example. A high number of copper theft cases registered at the SAPS Philippi East are closed as undetected; this is primarily due to investigators not making use of MO information and applying such information to successfully investigate copper theft and to, ultimately, ensure a conviction in a court of law.

As stated in a Congress of South African Trade Unions (COSATU) press release by Matthew Parks, COSATU Parliamentary Office it is estimated that cable theft costs South Africa up to R7 billion per annum. Much of this is workers' hard-earned tax money. Two people died, 19 were critically injured and a further 281 were injured, when two trains collided near Pretoria in January 2011. This collision was as a result of the theft of two 25-metre cables, which caused a disruption in the signalling system. The financial cost of this accident to the trains and rails was in excess of R22 million. In 2010/11, Telkom reported that they suffered losses of up to R183.5 million due to cable theft. In certain areas, Telkom has simply stopped replacing stolen cables due to the high theft rate. Further, between 2006 and 2011, Eskom, Telkom and Transnet reported combined losses of more than R3.12 billion due to copper theft. Workers' jobs at these parastatals are threatened, as those state-owned companies have drained their funds in trying to repair the damages caused by cable and metal theft. Workers and companies suffer further financial losses due to the constant train delays caused by cable theft.

From the researcher's experience in the investigation of copper theft, it was established that the Philippi East SAPS was, at the time of this study, targeted by three different copper theft syndicates with different MO's. It was further established that these were interlinked with other surrounding policing clusters. This information was communicated to attendees at the SAPS Non-Ferrous Metal Crime Combating Committee (NFMCCC) meeting on 31 August 2012. The main reason identified as underpinning the rationale for this research is that the police officials, or parastatals, are usually the first to arrive on the crime scene of copper theft, but they fail to pro-actively collect data (information) related to the evidence and to build a profile on the different levels of suspects. This has a negative impact on solving the crimes committed and causes clear mistrust between the SAPS and their clients, as far as effective service delivery is

concerned. Moreover, by not maintaining a database of MO information on incidents of copper theft, efficient preventative measures cannot be proposed and implemented.

The researcher is of the opinion that the importance of researching this topic was to enhance the significance of MO information in the investigation of copper theft and to enhance an understanding of the different MOs applied by copper thieves. This improved understanding will assist both inexperienced and experienced investigators, who investigate incidents of copper theft, in making effective use of MO information in a forensic investigation. The forensic investigation interlinked with the MO of such criminals will also provide a court of law with a better understanding of the dynamics of copper theft, and will facilitate improved conviction rates. The researcher conducted a preliminary assessment of case data in copper theft investigations at SAPS Philippi East, including cases from 1 January 2011 to 30 April 2014. The following copper theft incidents were recorded during the identified period:

YEAR	NUMBER OF CASES REGISTERED
2011	11
2012	10
2013	15
2014	10

Table 1.1: Reported copper theft cases at Philippi East SAPS from 1 January 2011 to 30 April 2014

1.3 RESEARCH AIM

According to De Vos et al. (2012:108), the aim of the study indicates the central thrust of the research, while the goals identify the specific issues focussed on in the study. Leedy (1997:11) explains the aim of research is to discover new facts and their correct interpretations, to revise accepted conclusions, theories, or laws in the light of newly discovered facts, or the practical application of such a conclusion. The research aim is strongly interlinked to the problem statement in order to ensure that all the gaps will be addressed systematically (Welman et al., 2005:2).

The research aim of this study was to assess the significance of MO information in copper theft investigation.

1.4 RESEARCH PURPOSE

According to Welman et al. (2005:22), the purpose of research is threefold: to describe *how* things are, that is, define the nature of the study object. To explain *why* things are the way they are; it may be so because one thing has caused another to change. We also like to explain *what* this relationship between things is and to predict phenomena, such as human behaviour in the workplace, with the aim of using this information, for example, to screen job applicants. Denscombe (2002:25) emphasises that there must be a reason for conducting research.

Based on the explanation of the purpose of research, as offered by Welman et al. (2005:22), this study focusses on the following purposes:

- To describe how forensic investigators, utilise MO information in the investigation of copper theft.
- To explain why forensic investigators who investigate copper theft do not optimally utilise MO information.

1.5 RESEARCH QUESTION

According to Gray (2014:690), a research question is a specific formulation of the issues that a research project will address. Kumar (2011:397) similarly describes research questions as questions for which one would like to find answers through research. The researcher seeks to answer the following research question:

- What is the significance of MO information in copper theft investigations?

1.6 KEY THEORETICAL CONCEPTS

The following concepts are central to this study:

1.6.1 *Modus Operandi*

Modus operandi is a Latin term meaning ‘method of operation’. *Modus operandi* often plays an important role when investigators attempt to link different offences to one offender. *Modus operandi*, thus, not only has a linkage aspect (identifying and linking multiple crimes by the same offender) but can also be used as a resource management tool for multiple offenders (by identifying popular times and areas in which criminals operate). *Modus operandi* can also be used to warn members of the public, so as to prevent them from becoming victims of crime (for

example, by informing the public of a certain con-story used by offenders to gain access to private homes) (Labuschagne (in Zinn & Dintwe, 2015:277-278).

1.6.2 Theft

According to Burchell (2006:782), theft consists of an unlawful appropriation with intent to steal something capable of being stolen. In respect of its purpose and function, theft was originally defined as the secretive “taking” and “carrying away” of property from the possession and control of the owner. The essential nature of theft has changed over the centuries to a wider motion of depriving the owner of his or her interests by carrying away, or by other devices.

1.6.3 Copper

According to *The Free Dictionary* (2003), “copper” is a ductile, malleable, reddish-brown metallic element that is an excellent conductor of heat and electricity and is widely used for electrical wiring, water piping, and corrosion-resistant parts, either pure or in alloys such as brass and bronze.

1.7 VALUE OF THE RESEARCH

This study and its outcomes could be taken into consideration to the advantage of the investigators of Philippi East SAPS, as well as other investigators in this particular policing cluster, since it seeks to improve and develop forensic investigators’ understanding and proficiency with regard to the application of MO information during the investigation of copper theft. These investigators could also use the outcomes of this study as a yardstick for their present practices, in light of the findings of this research. The findings could also be used as an instrument to assist investigators who investigate copper theft by identifying and remedying any limitations, and enhancing training interventions for investigators.

The attained knowledge will be made available to students and faculty of the University of South Africa (Unisa) and the greater academic community, for use in curriculum development; it will also be available as a research source for students and researchers. The broader SA society will also benefit if copper theft cases can be undertaken professionally and timeously, thereby creating a higher conviction rate. The reduction of copper theft and the increased conviction of perpetrators will benefit the country’s economy since damages to the infrastructure of utilities, such as Eskom, Telkom, and the SA Railway Services, could be limited and service delivery to their clients could be enhanced.

1.8 DEMARCATION OF THE STUDY

This study was limited to investigators attached to the SAPS Philippi East, in the Nyanga policing cluster, in the Western Cape. This study focussed particularly on the use of MO information as a method to be employed when investigating copper theft.

1.9 RESEARCH APPROACH AND DESIGN

The researcher will follow a qualitative research approach supported by empirical research. Qualitative research is an approach that allows the researcher to examine people's experiences in detail, by using a specific set of research methods such as interviews, focus group discussions, and observation. The qualitative approach allows one to identify issues from the perspective of the study participants, and understand the meanings and interpretations that participants give to behaviour, events or objects. Qualitative researchers also study people in their natural settings, to identify how their experiences and behaviour are shaped by the context of their lives (Hennink, Hutter & Bailey, 2011: 9).

The researcher will assess investigators' experiences related to the use of MO information in the investigation of copper theft by using semi-structured interviews as research method. This research method will allow the researcher to study the participants in their natural work environment to gain an understanding of their experiences and interpretations relating to the use of MO information in the investigation of copper theft.

Hennink, Hutter and Bailey (2011: 29) explain the design cycle consists of four interlinked tasks: the formulation of research questions, reviewing research literature and incorporating theory; developing a conceptual framework for the study; and selecting an appropriate fieldwork approach. In order to fulfil these interlinked tasks the researcher clearly describes and explains these tasks in detail in this study. Empirical research will be conducted to provide answers to, as Braun and Clarke (2013: 43) suggest, such as:

- What do I want to know?
- How will I collect my data?
- Who will I need to collect my data from?
- How will I access and recruit participants?
- How will I analyse my data?

- What ethical issues do I need to consider?

1.10 POPULATION AND SAMPLING PROCEDURE

Gray (2014:688) defines a population as the totality of people, organizations, objects, or occurrences from which a sample is drawn. The inclusion of all investigators in SA who investigate incidences of copper theft would be the ideal population through which to explore the research problem comprehensively. As a result of the impracticality of interviewing all the investigators responsible for the investigation of copper theft in the country, the researcher has reverted to a sample of the population consisting of those investigators attached to the SAPS in Philippi East.

Most empirical studies involve making a selection from a group for which propositions will be advanced at the end (Flick, 2011:70). The researcher has applied non-probability sampling, more specifically, purposive sampling, to select a sample from the population of investigators, at the SAPS in Philippi East, who investigate copper theft. The selected sample included 15 detectives.

1.11 DATA COLLECTION

In social research, there are three main forms of data collection: one can collect data through asking people (surveys and interviews), observing, or studying documents (Flick, 2011:104). The researcher used semi-structured interviews as the data collection method for this study:

1.11.1 Semi-structured interviews

Semi-structured interviews are non-standardised, and are often used in qualitative analysis. The interviewer has a list of issues to be covered, but may not deal with all of them in each interview. The order of questions may also change depending on the direction that the interview takes. The semi-structured interview allows for the probing of views and opinions where it is desirable for respondents to expand on their answers (Gray, 2014:386).

The researcher conducted semi-structured interviews with participants who were allowed to speak from their personal experiences and knowledge concerning the use of MO information in the investigation of copper theft. The researcher drafted an interview guide derived from the problem statement and research question, and used this interview guide to obtain data from detectives attached to the SAPS in Philippi East, in the Western Cape. As a result, a first-hand comprehensive perspective was obtained from each of these detectives in order to gain a

complete and enhanced understanding of the use of MO information in the investigation of copper theft. Semi-structured interviews continued until data saturation was reached, that is, until no new information emerged from the interviews.

1.12 DATA ANALYSIS

According to De Vos, Strydom, Fouche & Delport (1998:203), data analysis basically entails that the researcher breaks the data down into its constituent parts in order to obtain answers to the research questions or to test the research hypotheses. The analysis of research data, however, does not in itself provide the answer to research questions. Therefore, the interpretation of data is necessary. To interpret is to explain, so as to find meaning. It is difficult or impossible to explain raw data; one must first analyse the data and then interpret the result of the analysis (Kerlinger, 1986:125-126).

Literature on qualitative data analysis documents a range of approaches, processes and procedures whereby researchers extract some form of explanation, understanding or interpretation from the qualitative data collected regarding the people and situations that they are investigating. Qualitative data analysis tends to be an on-going and iterative (non-linear) process; this implies that data collection, processing, analysis and reporting are intertwined, and not merely a number of successive steps (Maree, 2001:99). Creswell (2013:182) believes that the data analysis process conforms to a general contour, which the author represents in a spiral image, that is, a data analysis spiral. Creswell motivates for the comparison of the data analysis process to a spiral since the researcher engages in the process of moving in analytic circles, rather than using a fixed linear approach. Creswell further explains that the researcher enters with data or text and exists with an account or a narrative. In between, as Creswell describes, the researcher touches on several facets of analysis and circles around and around.

The researcher applied the following steps of the data analysis spiral, as described by Creswell (2013:182-184) to the analysis of the data collected for this study:

- Organising the data

The researcher commenced with the management of the data through organising the data into manageable files. These files were further converted to appropriate text units (e.g. words, sentences and themes).

- Reading and memorising

In order to get a sense of the entire database, the researcher read the transcripts in their entirety numerous times. This process enabled the researcher to divide the data into chunks. During this division of the data, the researcher noted key concepts that emerged from the data, and formed categories as well as supporting evidence to represent various perceptions about each category.

- Describing, classifying, and interpreting data into codes and themes

This step involves describing, classifying, and interpreting the data. In this loop of the spiral, the researcher will develop categories in which to build detailed descriptions and themes, and provide interpretations in light of the researcher's own views or the perspectives provided in the literature. The researcher continued with the process of coding the data in order to aggregate the text into small categories of information. The coding of data was followed by classifying the data by taking the qualitative information apart, and looking for categories and themes.

- Interpreting the data

In order to make sense of the larger meaning of the data, the researcher interpreted the data.

- Representing and visualising the data

In this final phase of the data analysis spiral, the researcher represented the data, that is, the researcher packaged what was found in the text.

1.13 METHODS TO ENSURE TRUSTWORTHINESS

Qualitative approaches to achieving rigour include building trustworthiness, authenticity, credibility, transferability, dependability and conformability (Gray, 2014:186). Skrtic (in Lincoln & Guba, 1985) suggests that the following aspects should be addressed to ensure trustworthiness in qualitative studies:

- Transferability, with purposive sampling to illustrate pertinent issues and factors, and thick descriptions to provide evidence for making judgements about similarities between cases.

In order to ensure transferability in this study, the researcher applied purposive sampling to obtain responses from the participants. Comprehensive descriptions of the participants' responses to the interview questions, in the form of verbatim excerpts, were illustrated to allow readers to make judgments regarding the transferability of the findings.

- Dependability, through the use of audit trails through the data.

To ensure dependability in this study, the researcher retained the audio recordings and transcripts of all the interviews conducted. In addition, the researcher kept a detailed list of references consulted throughout the study. The researcher has further documented interview guides to illustrate how interviews were conducted. As a result, any other person could conduct interviews with the sampled participants with a high likelihood of reaching parallel results. The data analysis method was also described in detail.

- Conformability, with the audit showing the connections between data and the researcher's interpretations.

To ensure confirmability in this study, the researcher kept a comprehensive account of the research methodology followed to control whether the interpretation of the findings, the recommendations and conclusions made can be drawn to their sources, and if they are supported by the analysis. The responses gained from the study participants have been electronically archived and the subsequent transcripts were stored for evaluation by other researchers, in order to authenticate the outcomes of the study.

- Credibility, the use of persistent observations; triangulation (of data, methods, theories and investigations); and member checks (where data and interpretations are tested with research participants).

In order to ensure credibility in this study, the research findings were taken back to respondents in order that they are able to evaluate whether such findings are a factual manifestation of their views.

- Authenticity, relates to the analysis and interpretation of the meanings and experiences that are lived and perceived by the subjects of the research. This means that the researcher is aware of the multiple voices contained within the data, and the subtle, sometimes conflicting, realities within it. The following questions could be asked: Are the interpretations true? Have rival explanations been considered?

To ensure authenticity of the analysed data and the interpretation thereof in this study, the researcher kept complete records of how data was analysed and subsequently interpreted. The researcher further took into account the multiple explanations from

participants, and has not only incorporated selected explanations. As a result, a true reflection of the interpretation of the data was enhanced.

1.14 ETHICAL CONSIDERATIONS

According to De Vos et al. (2005: 57), ethics is a set of moral principles that offers rules and behavioural expectations about the most correct conduct towards experimental subjects and respondents. The researcher adhered to the following ethical obligations, as prescribed by O’Leary (2014:64):

- **Informed consent**

O’Leary emphasises that participants can only give ‘informed consent’ to be involved in a research study if they have full understanding of their requested involvement, including time commitment, type of activity, topics that will be covered, as well as all emotional and physical risks potentially involved.

O’Leary further clarifies that informed consent implies that participants are:

Competent – participants should have reasonable intellectual capacity and psychological maturity.

Autonomous – participants are making self-directed and self-determined choices.

Involved voluntarily – participants should not be unaware, forced, pressured, or duped.

Aware of the right to discontinue – participants should not be under any obligation (or pressure) to continue involvement.

Not deceived – the nature of the study, any affiliations or professional standing, and the intended use of the study should be honest and open.

Not coerced – positions of power should not be used to get individuals to participate.

Not induced – while it may be acceptable to compensate participants for their time and effort, an inducement should not compromise a potential participant’s judgement.

- Ensure no harm to participants
Harm includes emotional, psychological or physical harm.
- Ensure confidentiality and anonymity
Confidentiality involves protecting the identity of those providing research data; all identifying data remains solely with the researcher. Anonymity refers to protection against identification, even from the researcher; therefore, information, data and responses collected anonymously should not be identifiable with any particular respondent.

1.15 CONCLUSION

This chapter presented a general overview of the research. The purpose of the study was also illustrated in this chapter. The aim of the study and the introduction of key theoretical concepts provided further clarification. In addition, the demarcation of the study was presented herein.

This chapter further presented the research methodology that was followed to address the research problem and to achieve the aim of this study, namely, to examine the significance of *modus operand* information in the investigation of copper theft. Semi-structured interviews and a literature study were conducted by the researcher as data collection methods. The qualitative nature of this study resulted in a description of methods to ensure trustworthiness. Finally, the ethical aspects adhered to in this study were presented in this chapter.

Chapter 2 provides an overview of *modus operandi* information in forensic investigation.

CHAPTER 2 AN OVERVIEW OF *MODUS OPERANDI* INFORMATION IN FORENSIC INVESTIGATION

2.1 INTRODUCTION

The researcher noted that the operational methods of criminals often include small, seemingly unimportant, acts that are unique to them as individuals and so distinguish them from other criminals. Identifying the offender is crucial because, without an identity, it is virtually impossible to trace the offender and, by implication, to solve the crime. The scientific study and classification of criminals according to their MO and information is an offender identification technique that can be of great value.

Upon examination of the significance of MO as a technique in the investigation of copper theft, it has become apparent that forensic investigators find it difficult to identify the MO and information of suspects in copper theft cases. The conviction rate is also hampered due to the difficulty of the MO and information of suspect not being pro-actively identified. In most cases of copper theft, the MO of suspects is to operate under cover and for their own benefit, and to make use of innocent victims. This problem has a negative impact, politically, socially and economically, on all South Africans citizens, as well as globally.

According to Turvey (2012:18), the modern criminal MO and profiling are the result of history and criminal behaviour. Offender MO and profiling, also known as criminal profiling, is broadly considered to be a behavioural and investigative tool intended to help forensic investigators to accurately predict the MO information and profile the characteristics of unknown criminal subjects or offenders. The method of profiling an offender is used in order to understand MO information, the criminal's mind, as well as the suspect's MO behaviour, long before the crime is committed.

2.2 A BRIEF OVERVIEW OF THE LEGISLATIVE FRAMEWORK GOVERNING COPPER THEFT IN SOUTH AFRICA

The SAPS is the custodian of all laws in South Africa, and has the role and responsibility of combatting crime (such as copper theft) in the country; it is strongly supported by the Second-Hand Goods Control Act, 6 of 2009 (South Africa, 2009) to police in his matter. Due to the lack of clear understanding of the different levels of MO and information regarding suspects in copper theft cases, as well as the forensic investigators' lack of knowledge of the MO and information

of the suspects during copper theft, or a clear understanding of the legislative framework of MO as a technique in forensic investigation of copper theft, it has become important that the researcher unpacks the legislative framework. This will ensure a better understanding thereof, by ensuring the competitive edge through effective and efficient systems and planning, in line with the bigger picture and the legislative framework. The MO of suspects can be profiled proactively, which will be maximised in order to ensure increased successful conviction rates. The researcher found that the relevant legislative framework, of all the relevant stakeholders, must be strongly integrated; that is, between the forensic investigators, legal services, crime intelligence, parastatals and the Department of Justice, as it is vital to secure a more effective and efficient criminal justice system.

The Criminal Matters Amendment Act, 18 of 2015 (South Africa, 2015) recognises the importance of essential infrastructure in providing basic services to the public. It also recognises the unacceptably high incidence of essential infrastructure related crime, which poses a risk to public safety, electricity supply, communications and transportation. The Act further acknowledges the harmful consequences to the livelihood, well-being, daily operations and economic activity of the public if basic services cannot be provided due to loss, damage or disruption caused by essential infrastructure related offences, such as copper theft.

According to Innes (2003:54), the influence of the law and legal system upon investigative practice can usefully be conceived of as what Goffman (1974) terms a “frame”, that is, a mechanism that orders past, present, and future thoughts, experiences, and actions. *Modus operandi* is an example of this. The legal frame is enacted by detectives and other socio-legal actors as a mode of rationality that conditions and shapes how they think about, act towards, and understand the MO of the offenders and information related to the offences, as well as their affective responses to such matters.

Van der Watt (in Zinn & Dintwe, 2015:163) is of the view that it is of utmost importance that investigators are well acquainted with the powers afforded to them by the relevant legislation, and the limitations applicable to those powers. Legislation and regulations empower investigators from different agencies to conduct investigations. Disregarding legislation and regulations will adversely affect the admissibility of evidence and the outcome of copper theft investigations; it may even expose an investigator to criminal or civil action.

2.2.1 The Constitution of the Republic of South Africa, 1996

According to the Constitution of the Republic of South Africa, 1996 (South Africa, 1996) the objectives of the SAPS are to prevent, combat and investigate crime, to maintain public order, to protect and secure the inhabitants of the Republic and their property, and to uphold and enforce the law.

In the SAPS Annual Performance Plan of 2014/2015 (South African Police Service, 2015), the former National SAPS Commissioner, General M V Phiyega, states the following:

“We recognise that the police station is the first contact point for the public; hence, it is important to ensure that all our officials are appropriately equipped in terms of equipment and skills to render a professional service. When gearing ourselves up to achieve this, we must recognise that the SAPS are reliant on people in order to deliver on its Constitutional mandate of preventing, investigating as well as maintaining law and order.

Whilst there has been significant investment over the years in correcting the systems and the people in order to get the SAPS to function optimally, there is still a lot of work to be done. In September 2013, I announced that the structure of the SAPS will be revised in order to reduce the total number of Deputy National Commissioners from six to three. Most importantly, our core business of policing, (all uniformed functions including detectives) reports to one Deputy National Commissioner. Crime Intelligence is a key element but I’m still nurturing it and bringing about leadership stability”.

The researcher supports this view, and wishes to emphasise that the integrated approach must be followed to ensure a clear pro-active understanding of the significance of MO information as a technique employed in the investigation of copper theft. The researcher is further of the opinion that, as a result of this, the leadership of the SAPS will have improved stability; however, the SAPS must promote a clear understanding of the significance of MO information in the investigation of copper theft.

2.2.2 Criminal Matters Amendment Act, 18 of 2015

According to Burchell (2006:782-795), there may be some grounds for the justification of the taking of another’s property, for instance, unauthorised administration, necessity, statutory authority or consent. The researcher noted that the investigation of copper theft cannot be conducted by normal investigation procedures; the mind shift must be set to specific priorities,

that is, to recognise the importance of essential infrastructure in providing basic services to the public. Infrastructure-related offences, such as copper theft, are becoming increasingly more organised and are often committed by armed and dangerous criminal groups. The negative impact of these offences, specifically copper theft, on South Africa's economy and society, and on peace and stability in the country, is stated in the Preamble to the Criminal Amendment Act, Act 18 of 2015 (South Africa, 2015).

According to Pamla (2015), spokesperson of COSATU, the Criminal Matters Amendment Act, Act 18 of 2015 (South Africa, 2015), can curb cable theft and vandalism in South Africa. Pamla further stated "COSATU welcomes the parliament's decision to pass the Criminal Matters Amendment Act and urges the President of the country, to urgently sign this Act into law". It is further stated that "it is a badly needed and long overdue intervention to try and stem the tide of cable and other essential infrastructure theft which have severely undermined the government's ability to deliver electricity, water and other badly needed services to the people".

2.2.3 Second-Hand Goods Control Act, 6 of 2009

Section 28(1) of the Second-Hand Goods Control Act, Act 6 of 2009 (South Africa, 2009), states the following:

Routine Inspections: A Police Official may during times when business activity in respect of Second-Hand Goods is taking place, enter the premises of any registered dealer in order to investigate compliance with this Act and require the dealer, owner, an employee or the person in control of the premises to –

- (a) Produce the certificate of registration relating to that premises for inspection;
- (b) Produce any register, record, book or other document relating to the goods in or on the premises for inspection or for the purposes of obtaining copies thereof or extracts there from.
- (c) Produce any goods found in or on such premises for examination; or
- (d) Explain any entry or absence or any entry in any register, book, record or document found therein or thereon.

Furthermore, Section 28(2) states the following:

If, upon any inspection, a police official discovers that any method of dealing, recording of transactions in registers or storage that is being used is in contravention of this Act, the Police Official may –

Demand immediate discontinuation of the method; and

Afford the dealer a period of no more than seven days to rectify such method in order to ensure compliance with the Act.

During the researcher's work experience in ensuring compliance in terms of this Act, (The Second-Hand Goods Control Act, Act 6 of 2009 (South Africa, 2009), it was found that section 28(1) and 28(2) need to be amended to ensure that they have a significant impact on the control of copper theft, and making this effective and efficient. Second-hand goods' dealers in the industry do not ensure compliance with Act 6 of 2009, especially in terms of Section 28(1) and (2).

2.2.4 Criminal Procedure Act, 51 of 1977

2.2.4.1 Bail Restriction: Section 2

Section 2 of the Criminal Procedure Act, 51 of 1977 excludes the application of Section 59 and 59A of Act (CPA) (South Africa, 1977).

There is consequently no discretion for police officials and prosecutors to grant bail to persons charged with any essential infrastructure related offence.

Only the courts may deal with bail applications for these offences in terms of Section 60 of the CPA.

2.2.4.2 Bail Restriction: Section 4

Section 4 amends Schedule 5 to the CPA, by inserting in the Schedule certain essential infrastructure related offences, including the new offence created in Section 3(1).

An accused that is charged with these offences may only be released on bail if the accused adduces evidence which satisfies the court that the interests of justice permit his or her release.

2.3 THE VALUE OF *MODUS OPERANDI* INFORMATION

Herbig (2009:93) states that MO information and crime scenes, although often quite diverse, dynamic and regularly incongruent, are to be regarded as fundamental pieces of the puzzle, in investigating the illegal reptile trade. From experience, the researcher concurs with Herbig and is, thus, of the opinion that MO information should form an integral part of investigations into copper theft. Marais and Van Rooyen (1991:66) support the statement made by Herbig, and further state that apart from the obvious and generic benefits of examining the *modus operandi*

of criminals, crime scenes will habitually play an important and decisive role in determining *modus operandi*. This should, therefore, always be regarded as a vital and seminal ingredient of the crime scene such as copper theft – *modus operandi* interface. Labuschagne (in Zinn & Dintwe, 2015:281) states that MO information is often recorded in the investigation diary of a SAPS case file, or in the case docket. However, this information is frequently sketchy. If the investigator is doing an analysis of the offender's *modus operandi*, it is best to review the whole docket by studying the victim and witness statements. Labuschagne (in Zinn & Dintwe, 2015:277-278, 281) argues that MO information does not only have a linkage aspect (i.e. identifying and linking multiple crimes by the same offender) but can also be used as a resource management tool for multiple offenders (by identifying popular times and areas in which criminals operate during copper theft). *Modus operandi* information can also be used as a warning to members of the public, so as to prevent them from becoming victims of crime (for example, copper theft). Innes (2003:53) is of the view that the main purpose of using interlinked MO and information as a technique in the forensic investigation of copper theft is that the levels of theft and a suspect's MO and information can assist in his or her identification, apprehension or repression, and can be used to examine links between crimes, such as copper theft.

Participants were asked to respond to questions pertaining to the use and management of MO information as well as the impact and significance they attach to MO information in the investigation of copper theft. First, participants were asked the following question: *Do you optimally utilize MO information in your investigation to identify copper thieves?* The purpose of this question was to explore whether, and to what extent, participants use MO information in their investigations of copper theft.

It appears, from the responses, that the vast majority of the participants do not optimally utilise MO information during their investigations of copper theft. This comes as a result of inexperience in such investigations, non-exposure to copper theft, or other practicalities related to copper investigations. The participants' responses to this question are summarised as follows:

- The vast majority of participants have limited experience in the investigation of copper theft, therefore, they do not optimally utilise MO information in the investigation of copper theft.
- Only one participant believed he optimally utilises MO information in the investigation to copper theft. Interestingly, this participant regards the optimal utilization of MO

information as advising investigators to physically visit crime scenes, speak to possible witnesses and to gather information to obtain an understanding of the MO used.

- In contrast to the other participants, one participant had a different opinion; this participant argued that one cannot make use of MO information in the investigation of copper theft since case dockets are not being investigated by a specific investigator or any particular section of the SAPS; therefore, it is difficult to follow the MO of copper thieves. In addition, this participant suggested an overload of cases to be investigated as the reason why investigators are not in a position to optimally utilise MO information, particularly in the investigation of copper theft.

In contrast to the above literature on the value of MO information, as outlined in paragraph 2.3 of this chapter, the responses gained from the study participants clearly indicate that investigators do not optimally utilise MO information in the investigation of copper theft. It appears that the underutilization of MO information in the investigation of copper theft is a result of limited experience, case overload experienced by investigators, and the inaccessibility of data; all of these factors are found to inhibit the establishment of the MO of copper thieves.

Secondly, participants were asked the following question: *Do you maintain a database of MO information on incidents of copper theft to implement efficient preventative measures?* The purpose of this question was to ascertain whether the participants kept any record of MO information pertaining to copper theft. Responses are summarised below:

- A number of participants were of the view that it is imperative to develop and maintain a database containing MO information related to copper theft incidents; however, such a database does not currently exist.
- In contrast to the participants mentioned in the point above, another participant was of the opinion that a database on MO information does exist, however, it is not accessible to investigators.
- Other participants, however, held different views. These participants were of the view that a formal database containing MO information related to copper theft incidents should be in place, but MO information regarding such incidents is informally shared among investigators at parades, or they would peruse all theft cases to determine how many of these cases were related to copper theft. It also became apparent that no preventative measures are implemented to curb copper theft based on this informal arrangement.

- A few of the remaining participants were of the opinion that a database containing details related to copper theft incidents should be implemented, maintained and centralised at the cluster level. These participants were also of the opinion that a specialised investigative unit should investigate such cases at the cluster level.

The responses of the participants clearly indicate that no database consisting MO information on incidents of copper theft is kept and maintained by the participants, or any other division, in order to assist in the investigation of copper theft. It is further evident that the participants rely on informal arrangements among themselves in order to collect rather superficial information related to copper theft incidents by attempting to compare and establish links between such incidents. As a result of the non-existence of a database containing reliable data, the study participants cannot rely on more scientific data to assist in instituting preventative measures against copper theft. Parastatals have their own databases; however, no information-sharing and/or systematic integrated approach to these matters, with the SAPS, takes place.

Thirdly, the participants were asked the following question: *Is it important that investigators are familiar with the different MOs applied by copper thieves?* The purpose of this question was to explore participants' opinions regarding the importance of an investigator's knowledge of the various MOs used by copper thieves. Participants' responses are summarised as follows:

- The majority of the participants were of the view that it is important that investigators are familiar with the different MOs applied by copper thieves. These participants explained that the identification of suspects' trends would assist with both pro-active and reactive policing, as motivation for their responses to this question.
- Other respondents placed emphasis on the importance of an investigator's knowledge of different MOs by explaining that investigators should continuously be exposed to training interventions in order to keep abreast of the changing nature of copper thieves' MO.

From the participants' responses to this question, it is evident that these participants regard sufficient knowledge of the various MOs that copper thieves use as significant for the successful investigation of copper theft. The significance of sufficient knowledge of the different MOs used by copper thieves lies in the identification of suspects, determination of ownership and linking of different cases of copper theft.

Fourthly, the study participants were asked the following question: *According to you, can copper thieves be identified by utilising MO information?* The purpose of this question was to investigate participants' interpretation of the value of MO information in the identification of copper thieves. Participants' responses to this question are summarised below:

- All the participants agreed that copper thieves could be identified by utilising MO information. These participants emphasised that copper thieves' trends and preferences could be established by MO information, which could assist in identifying copper thieves.

Fifthly, the participants were asked the following question: *From your experience, do you regard MO information to be important in copper theft investigation?* The purpose of this question was to examine whether the participants deem MO information to be important in the investigation of copper theft. A summary of the responses gained from the participants is offered below:

- All the participants regarded MO information to be important in successfully conducting copper theft investigations. The participants' motivations for their answers included the following:
 - MO information provides the investigator with insight into possible explanations to the "why", "what", "when" and "how" questions pertaining to copper thieves.
 - MO information could be used to link a copper thief with previous incidents of copper theft.
 - A database consisting of updated MO information could assist investigators in identifying copper theft suspects.

It appears, from the participants' responses, that although they do not have sufficient experience in copper theft investigations, they regard MO information to be important in successfully conducting copper theft investigations. However, they rely on their general investigation skills and knowledge to investigate these crimes.

2.4 MODUS OPERANDI AS AN ELEMENT OF CRIMINALITY

According to Melville, Morgan, Norris and Walkington (2006:56), for many centuries, we have attempted to find out which people are likely to become criminals and what elements or MO drives certain individuals to commit a particular type of crime in the first place. Over the years, psychologists have considered a range of different explanations in order to answer these difficult questions. Some have argued that there may be a generic explanation at the center of explaining

criminal behavior, while others have suggested that it is the environment and external elements in which people live that can influence their chance of becoming a criminal.

Melville et al. (2006:56) further state that MO and criminality, as an element of personality, is commonly used to attach labels to criminals and attempt to explain their behavior through describing them as possessing a certain character trait; for example, it is common to refer to some criminals as “psychos” – particularly in films and newspapers. This element and type of person is actually called a ‘psychopath’ and labels such as these have been developed by psychologists to help us understand the different categories of personality type into which people fit. Not all of these elements are criminal, but it is assumed that many criminals possess similar personality characteristics. Melville et al. (2006:57) is of the view that one prominent idea surrounding the element and nature of criminal personality concerns the notion of intelligence. When we talk about intelligence we are referring, generally, to a person’s intellectual ability or Intelligence Quotient (IQ). The element link between intelligence and copper theft is regarded as being negatively correlated (i.e. as the rate of one rises the prevalence of the other diminishes), and it is thought that people with low IQs are more likely to become criminals.

Venter (2008:1) states that one of the most regular reporters on the copper theft phenomenon has reported that the typical small-time copper thief was a subsistence criminal who was financially underprivileged. The despondent disposition of these subsistence entities was capitalised on by organised crime elements that employed them to steal. They were, however, in the minority as gangs were responsible for most copper theft, while large cartels were at work in the scrap trade. Labuschagne (in Zinn & Dintwe, 2015:277) is of the view that MO analysis can enable law enforcement agencies to better allocate resources. The researcher supports the view put forward by Melville et al. (2006:57), which was also found to be the case at the SAPS in Philippi East. The researcher is left with the following question: what drives a person to become involved in a crime of copper theft knowing that it can cause his death the minute he cuts the high voltage (11 000 volts) electric cable? Thio (2007:8) confirms the argument made by the researcher, in suggesting that the idea of choice simply cannot explain the difference between deviance and conventionality; it cannot explain why one person chooses to kill (a similar argument could be made for copper theft) and the other chooses not to. Therefore, although positivists do believe in human choice, they will not attribute deviance to human choice. Instead, they explain deviance by using concepts such as wife abuse, broken homes, unhappy homes, lower-class background, economic deprivation, social disorganization, rapid social change, differential association, differential reinforcement, and the lack of social control. Any one of these causes

of deviance can be used to illustrate what positivists consider to be a real explanation of deviance because, for example, wife abuse, is more likely to cause a woman to kill her husband than not.

In this regard, participants were asked the following question: *Are you familiar with the different modus operandi applied by copper thieves?* The purpose of this question was to assess the participants' knowledge of the various methods of operation used by copper thieves. A summary of the participants' responses follows:

- The majority of the participants expressed that they are familiar with the particular *modus operandi* applied by copper thieves. These participants, however, did not indicate their awareness of diverse MOs applied by copper thieves.
- In contrast to the participants mentioned in the point above, one participant acknowledged that he is not familiar with any specific MOs applied by copper thieves.
- A number of participants were of the view that copper thieves do not deviate from their MO, and that these thieves always apply the same MO.

It appears, from the participants' responses, that the lack of information-sharing and coordination between the business sector, parastatals and the SAPS are motivating factors for the limited knowledge concerning the different MOs used by these suspects. There appears to be no active focus on addressing copper theft; this contributes to the participants' unfamiliarity with the MO of copper thieves.

2.5 FACTORS THAT CAN DETERMINE OR INFLUENCE *MODUS OPERANDI*

According to Bennet and Hess (2004:336), it is important to include the following factors during the examination of MO information: time, type of copper cable, weight of the copper cable and value, premises and means of entry, tools used during the copper theft case, particularities of offences, and lawful owner of the stolen copper cable. Turvey (2002:231-232) states that in order to determine the criminal's MO it is important to understand that their MO is comprised of learned behaviors that can evolve and develop over time. It can be refined as an offender becomes more experienced, sophisticated and confident. The influence on the MO and information of the offender is that they can also become less competent and less skillful over time, de-compensating by virtue of a deteriorating mental state, or increased use of controlled substances (Turvey, 2000:221). Turvey (2002:231) continues by stating that, in either case, like in copper theft, an offender's MO is functional in nature. It most often serves or fails one or more purposes.

The offender wants to protect his/her identity by either wearing a mask or gloves or disguise during the copper theft. By making a list of pertinent information such as potential victims, areas, etcetera, the offender tries to ensure the successful completion of the crime. The offender also has to facilitate his/her escape by disposing of the getaway vehicle after the completion of the crime. Du Plessis (1989:84) supports this statement and describes it as a system of identifying the offender based on the surmise that a transgressor leaves behind his trademark in the form of the crime he commits, and the methods he/she employs in doing so. In a manner corresponding with the “Locard Principle”, the criminal cannot escape the crime information that he/she transfers to the scene (Van der Westhuizen, 1996:38).

The South African Actuality Television Program, *Carte Blanche* (M-Net, 2019) reported that cable thieves gathered information and determined hotspots. They usually focused on specific cables in specific areas derived from experience they have gained over the years. Every scenario was different; however, the manner in which the thieves cut the cables stayed the same. Their tools were quite rudimentary, but incredibly effective. For overhead cables, they used a hacksaw or bolt cutter attached to a specific length of pole with rubber tubing, and then with a rope and tube rubber they controlled the leverage. Le Roux (2008:1) is of the viewpoint that, in many frequent theft or hotspot areas, the same copper cables are repeatedly stolen, sometimes within days of having been replaced or repaired. This implied that local repeat offenders are involved. They knew precisely what the weaknesses and the strengths of the security system are, and what their calculated chances of being caught are.

Geldenhuys (2008:10) supports the statement made by Le Roux (2008:1), and further states that copper thieves generally work at night. Organized criminals are armed with trucks, pulleys, industrial cutting tools and tractors, to flatten the pylons and poles in order to get hold of the metal. These syndicates are highly sophisticated. They use state of the art equipment and employ both internal and external specialists for their own safety and security. They steal and sell in bulk. The personal risks for inexperienced thieves are very high. Thus, it is under great stress that they strip and sell the cables. Whereas subsistence thieves are the small-time and on-foot criminals who claim that they steal for survival; their tools of trade are rudimentary at best.

According to Yorke-Smith (2010:1), ‘natural’ opportunities are created, mostly by the remoteness of the targets where repair-work is in progress, and where the technicians and workers are unprotected. Many remote sites are also difficult to secure, as they comprise of areas that are often without power or communication lines. These areas are ideal targets for stealing

copper items found in plumbing, wiring, generators, materials, air conditioners, cables, copper grounding bars, sprinkler systems and cooling systems. In fact, for the resourceful copper thief the opportunities are boundless.

These 'remote' sites include, for example, construction sites, vacant buildings, communications towers, electrical sub-stations and foreclosed properties (Yorke-Smith, 2010:1). Hi-Tech-Solutions (2009:1) support the remoteness factor, which thieves take full advantage of. Isolated sites are even more vulnerable when these do not have access to electricity or any means of communication, such as a fixed line or a radio transmitter to transmit alarm signals. The uncertainty of the country's power supply exacerbated the problem by often rendering Closed Circuit Television (CCTV) systems inoperable.

Labuschagne (in Zinn & Dintwe, 2015:281) is of the view that if the investigator is assessing multiple cases, for example, when confronted with a serial offender (be it a serial housebreaker, serial rapist or serial murderer - a similar theory could be applied to copper thieves) it is best to compile a table, or matrix, of each case with the relevant features, and to note how often a particular feature occurs. The forensic investigators must understand the bigger picture during copper theft investigations. The forensic investigator must be more pro-active by identifying the significance of MO information in copper theft investigations, and must examine the specific problem. Forensic investigators must enhance their visibility and intelligence in order to make an accurate decision in the planning phase and at the scene of the crime. The following factors influence and determine a criminal's MO: Opportunities to commit the crime.

- Physical attributes.
- Fluctuating needs and desires.
- The immediate situation of the criminal.
- Knowledge and experience.

The research participants were asked the following question: *Do you optimally utilise modus operandi information in your investigation in order to identify copper thieves? If not, what are the inhibiting factors?* The purpose of this question was to determine the factors deterring participants from utilising MO information to identify copper thieves. In summary, the participants responded as follows to this question:

- A number of participants cited the lack of communication between complainants, particularly referring to parastatals such as Eskom and Telkom, and the SAPS as an inhibiting factor in optimally using MO information during copper theft investigations.
- Other participants were of the opinion that there is no particular MO threat analysis conducted at the SAPS in Philippi East to enable investigators to establish the trends of copper thieves. Investigators should thus rely on their own ability to establish the MOs of copper thieves.
- Some participants believe that copper theft is not a priority in Philippi East as other crimes are regarded as more serious. In addition, the high frequency of other crimes requires investigators' attention.
- Another participant raised the inaccessibility of information that is electronically stored as an inhibiting factor. A few participants suggested that MO information should be captured via a centralised database at the cluster level in order to enable investigators to network.
- One participant was of the opinion that a specialised unit investigating copper theft should be established. The absence of such a specialised unit is viewed as an inhibiting factor in the optimal utilization of MO information.

Participants were further asked the following question: *Do you optimally utilise modus operandi information in your investigation in order to identify copper thieves? If affirmative, how do you manage the MO information?* The purpose of this question was to explore how those investigators who utilise MO information in copper theft investigations manage such information. In summary, the participants responded as follows to this question:

- One participant acknowledged that he manages MO information of copper theft on an informal basis; however, he and other participants suggested that MO information regarding copper theft investigations should be managed at the cluster level and scaled down to the station level since the MO of copper thieves differs from area to area.
- A number of participants placed emphasis on the use of informers and intelligence-led investigations to gather and to manage the MO information of copper thieves. Interestingly, one participant highlighted information-sharing among investigators as a

method of managing MO information, however, he cited police corruption as a deterring factor in the sharing of information.

One participant viewed entering into relationships with the community, such as scrap yard dealers, as a method of managing MO information.

A few participants agreed that MO information is shared among investigators during daily parades, where copper theft cases with similar MOs are discussed. However, these participants were of the view that copper theft has not received specific attention and that there has not been any emphasis on specialized training in copper theft investigations.

Participants were further asked the following question: *How can investigators improve and develop their understanding of, and proficiency with regard to, the application of MO information in the investigation of copper theft?* The purpose of this question was to gain insight into participants' thoughts regarding how they could gain and cultivate improved knowledge and skills so as to efficiently collect and apply MO information in copper theft investigations. Summary of the participants' responses follows below:

- A number of participants recommended that investigators employed in the private sector should avail their skills to SAPS investigators since most private investigators are former SAPS investigators with extensive training, knowledge and experience in copper theft investigation. In agreement, other participants emphasised the need for proper training, sensitising investigators of the importance of MO information, and gaining additional experience in copper theft investigations.
- Other participants suggested that each detective branch in the Nyanga Cluster should have one or two investigators who have undergone intense training on copper theft investigations. These investigators will then provide guidance to less experienced investigators in how to utilise MO information of copper thieves optimally in order to secure convictions.
- One participant suggested the implementation of a specialised copper theft investigation unit that would focus solely on these crimes. As a result, these investigators' proficiency will improve and proper networking and cooperation with complainants, such as Telkom and Eskom, could be established.

2.6 MODUS OPERANDI BEHAVIOUR BY SUSPECTS

According to Ryder (2011), the MO information and behavior of a large number of criminal activities is to generate a profit for organized criminals. Copper theft constitute the illegal process or act by which these individuals or groups attempt to disguise, hide or distance them, allowing organised criminals involved in copper theft to enjoy the profits of their illegal activities. This process is crucial as it enables them to enjoy a criminal lifestyle and fast money by illegal copper theft. Ryder (2011) further states that copper theft and money laundering is a significant threat to the stability of the global world, as well as markets, national security and businesses around the world. Ryder's (2011) suggests that it can be described as a cancer that undermines the financial integrity of jurisdictions, allowing organized criminals involved in copper theft to enjoy the profits of their illegal activities. Copper theft demands an international coordinated response.

Palmiotto (2013:197) argues that, in the preliminary investigation of a suspect, the investigating officer examines the crime scene, collects physical evidence, interviews victims and witnesses, and attempts to develop suspects based on the MO. Ryder (2011:14) states that there is a need for countries to recognize and implement international best practices as well as industry guidelines to combat copper theft effectively, in addition to the implementation of international legislative instruments. Ryder (2011) continues by stating that another central ambit of the global objective and legislative response to copper theft is the inclusion of mechanisms to prevent copper theft. These objectives and preventative measures are contained in the legislation as well as the international best practices and industry guidelines.

Douglas, Burgess, Burgess and Ressler (2006:20) are of the view that actions by an offender during the perpetration of a crime, in order to perpetrate the crime, area learned set of behaviours that the offender develops and sticks with because they work; however, they are dynamic and malleable. In any criminal career, including copper theft, every criminal makes mistakes, but most learn from them and try to get better with time.

The research participants were asked the following question: *From your experience, do copper thieves usually follow a constant stereotypical pattern and individualized technique when committing copper theft?* The purpose of this question was to explore whether participants found that a rigidly followed MO was applied by copper thieves, or whether they found that thieves adjust their MO from time to time when committing copper theft. In summary, the participants' responses to this question were as follows:

- Some participants indicated that they do not have sufficient experience in copper theft investigations; therefore, they are not sure whether a constant pattern is always followed by copper thieves or if they sometimes deviate from their MO. These participants motivated that their lack of knowledge was the result of copper theft not getting the attention it deserves.
- Two participants stated that copper thieves do not follow a constant stereotypical pattern and individualised methods when committing copper theft. These participants regarded copper theft as opportunistic, and were of the view that it is randomly committed.
- In contrast to the participants' responses outlined above, a number of participants agreed that copper thieves follow a constant stereotypical pattern and individualised techniques when committing copper theft. According to these participants, copper thieves regularly target specific locations and times, and employ specific methods to steal copper.

From the responses provided by participants, it appears that they lack experience in the investigation of copper theft since detectives only have general investigation skills and this particular crime does not receive specialised attention. It was further found that detectives are overburdened with too many case dockets to investigate; this generally resulted in some copper theft cases not being finalised for lengthy periods of time. Due to a lack of experience, some detectives turn a blind eye to copper theft cases. A constant stereotypical pattern is utilised by the poorest of the poor who commit these crimes to get money for food, and by others who seek to nourish their drug habits. Those perpetrators who follow an individualised technique have experience and knowledge of high currency electricity.

Participants were further asked the following question: *Are you able to distinguish copper thieves from other criminals using MO information?* The purpose of this question was to determine whether MO information assists participants in differentiating copper thieves/syndicates from criminals who commit other forms of theft. In summary, the participants' responses to this question were:

- A number of participants were of the opinion that they are able to distinguish copper thieves from other criminals using MO information, since these criminals specialise in copper theft by targeting particular components containing copper, such as circuit breakers and relay stations, using particular tools, and are not involved in other crimes.

- In contrast, some participants were of the opinion that one cannot distinguish copper thieves from other criminals and there is no differentiation between the two types of criminals since theft, including copper theft, is committed by desperate criminals who want to continue their drug habits. These respondents regard thieves as opportunistic.

2.7 CONCLUSION

According to Bennet and Hess (2004:161), factors to resolve criminal investigations are called solvability factors. A feature of almost every modern society is the emergence of organized criminal enterprises that often transcend national 'boundaries'. Burchell (2006:176) states that in order to ensure a positive conviction it is of utmost importance that the forensic investigator focuses on MO information to positively identify the suspect. Copper theft has a negative influence economically, politically, socially and has a negative impact on investors, both locally and internationally. The researcher has found that the majority of copper theft cases in South Africa can be solved through the effective and efficient use of MO information in the identification of the copper theft suspects. Aside from the value of activating and tasking informers to quality check and verify MO information in the investigation of copper theft, forensic investigators may rely on a network of informants in order to obtain them information that they have cultivated over the years.

3.1 INTRODUCTION

According to Amisi (2009:19), South Africa has a well-developed infrastructure consisting of a large rail network, road system, telephone network and electricity distribution network. The infrastructure was built up over decades, during a time when US\$8 000 for a metric ton of copper was conceivable. Metal was inexpensive and was used copiously in the construction of roads, bridges, railway lines, as well as electricity and telecommunication distribution networks. During the design, development and installation of these networks, it was never considered that it might become necessary to defend them against criminals.

From the researcher's experience, one of the biggest threats related to non-ferrous metal theft faced by South Africa is posed by the influx of foreigners into the country. These, mostly illegal, immigrants have no way of finding legal work and are therefore absorbed into the informal sector. The threat manifests in the situation where illegal immigrants have to support their families or send money to their country of origin. Solomon (1996:14) argues that this situation could compel them to consider committing a crime and, although not undisputedly conclusive, may serve as an indicator of an increased likelihood of the subject considering committing a crime; this seems to be supported by several researchers and institutes. Hoffman (2008) states that one such incident took place near Makhado/Louis Trichardt when police arrested seven suspects for the possession of suspected stolen copper wire. In this particular instance, the group who were arrested were of Zimbabwean origin, and included two women.

The Zoutpansberger (2007) reports that another variation of the non-ferrous metal theft phenomenon is illustrated by the Bandelierskop case where the police arrested three male suspects. The officers discovered large quantity of scrap metal and copper wire hidden inside a freight truck. This would not have raised much attention if not for the fact that the truck was travelling from Malawi to a destination in Gauteng, South Africa. All three suspects were of Malawian origin. The truck was registered in Malawi and the value of the metal was estimated at R500 000. This instance of cross border non-ferrous metal smuggling prompted the realisation that South Africa is not only a victim of the crime but that it may also be used as a transit point for syndicates involved in non-ferrous metal theft.

According to Osterburg and Ward (2010:3), the forensic investigator's responsibilities and personal attributes, as required for success, are: interpreting data, representing and visualizing

data during the investigations, understanding information pro-actively and ensuring the quality thereof. Forensic investigators must look at the elements and future developments that are likely to occur and interlink these with the three principal sources of information during the forensic investigation, as follows:

- Physical evidence
- People, and
- Records.

These elements must first be studied from an understanding of what the elements of copper theft are. Further, an understanding of physical evidence, its development, interpretation, and its investigative use is fundamental. Some familiarity with criminalities is recommended. Other appropriate sources of information during copper theft investigation are: people, criminals, victims, witnesses, friends and records (public and private). Given the impact of a rapidly changing society on areas such as copper theft, factors such as transportation, communication and globalization have made the task of forensic investigators working on copper theft investigations more complex. According Van der Watt (in Zinn & Dintwe, 2015:160), the actual investigation conducted at a scene of the incident (crime scene), for example, copper theft, is probably one of the most complex undertakings in the entire scope of activities related to forensic investigation. The researcher supports the statements made by Osterburg and Ward (2013), which are verified by Van der Watt, as they highlight that there is a greater need for forensic investigators, not only to be familiar with basic investigative principles, but to have the ability to think outside the box, specifically in relation to organised crimes such as copper theft.

Furthermore, Van der Watt (in Zinn & Dintwe, 2015:160) states that, in addition to the initial state of disarray and confusion that may reign at the first response to a scene of incident, the work of those involved at the scene is usually scrutinised by the media, the general public and the role-players involved in the events that led up to the trial. The criminal trial is the sum total of all the efforts made by the prosecution to prove the guilt of the accused beyond a reasonable doubt, whereas the accused will either attempt to refute charges brought against them or tries to capitalise on technicalities surfacing as a result of questionable practices by those involved in the investigation. This statement also applies to civil cases and other tribunals, although in those cases the test is normally based on the balance of probabilities.

The researcher agrees with the statements and views presented by the authors mentioned above, but wishes to put forwards the counter argument that this is where forensic investigators must focus on the mistakes and working methodology of copper theft suspects, and the investigators must become streetwise.

3.2 BRIEF OVERVIEW OF THE NATURE AND EXTENT OF COPPER THEFT IN SOUTH AFRICA

According to Arendse (n.d.:1), the meaning of the nature of something being essence, quintessence, and substance texture, like copper cable in South Africa, is that copper theft has reached epidemic proportions and has already been branded as the Red Gold Rush. Clive Justus, the Mayoral Committee Member responsible for Cape Town Utilities, made the following comment in a media statement: “Cable theft is draining the resources of the City’s (Cape Town) Electricity Services and hampering the efficiency in attending to other public electricity complaints. “The sudden rise in demand for this semi-precious metal, according to Scott Berinato of Data Terminal Equipment (DTE) Energy, in United States of America is said to have started in 2003 when the Grassberg copper and gold mine collapsed in Indonesia. At this stage, copper was still selling for 65 cents a pound on the London Metals Exchange. Losses of such mines, coupled with the ‘emerging Asia’ economy, forced the copper price to rise to record highs of £3 within three years, with China being the biggest buyer. In this respect, it is also notable that, according to Money Morning.com, copper value has increased at an average rate of approximately 4% per year, every year, since 1900. With the world entering a deficit condition (copper production fell below consumption), copper had to be sourced from somewhere and this led to metal theft reaching a 100% increase year over year worldwide. Some countries and states were hit hard, for example, Dallas (USA) experienced 1500 cases of copper theft in August 2006.

Van Dalen (2009:1) states that decisive action needs to be taken in order to deal with the theft of non-ferrous metal. Unless proper steps are taken, the continuing theft of copper cables will continue to undermine economic growth and development in South Africa. According to U-Dingane Senamela, Transnet Freight Senior Security Manager, “Copper theft syndicates were holding the country’s economy at ransom, causing the loss of jobs and destabilising operations that affected many economic activities across the country” (Mogome, 2008:1). Since 1993, the theft of non-ferrous metals in South Africa escalated to unprecedented levels with annual losses running into billions of rand (Venter, 2008:1). Van Dalen (2009:1) states that the multi-million-rand theft of non-ferrous metal items threatened to bring Cape Town to its knees. This statement

was strongly supported by Sikhumbuzo Eric Kholwane, Chairperson of the Parliamentary Portfolio Committee on Communications (Money Web, 2012:1). The SACCI spokesperson, Peggy Drodskie, emphasised that the effects of copper theft on the South African economy were huge, and ranged from delays in rail transport and shipping to dysfunctional traffic lights (Business Live, 2011).

The extent of this problem, according to Van den Berg (2004:1), is that the broader impact of copper theft does not only have an effect on victims of copper theft who suffered financial losses, but also on those who become victims of the indirect consequences of cable theft. The threat, however, is not only financial and service oriented, it also poses a direct threat to one's life. Ben Coetzee, a senior researcher at the ISS, highlights the danger of cable theft from major utility providers, saying that it poses, not just a major threat to the economies of the country but also to the safety of its citizens. Van Dalen (2009:1) further indicates that community safety is clearly at risk every day, as thieves more brazenly feed the general scrap industry.

According to the judgement of *13 Rail Commuters Action Group and Others v Transnet Ltd t/a Metrorail and others 2005 (2) SA 359 (CC)* it is the duty of the South African Rail Commuter Corporation Ltd to ensure safety of rail commuters. The central question in this case was whether Metrorail and the South African Rail Commuter Corporation Ltd (the respondent in the case) were obliged to ensure the safety of rail commuters. The applicants were the Rail Commuters Action Group, a voluntary association representing the interests of rail commuters in the Western Cape, and eight individuals who were affected by violent crimes committed on Metrorail trains. They approached the Constitutional Court for leave to appeal against a finding by the Supreme Court of Appeal. The applicants argued that there was a positive obligation upon Metrorail and the Commuter Corporation to protect rail commuters in stations and on trains.

The respondents argued that, in terms of Section 205(3) of the Constitution (South Africa, 1996), this obligation rested solely on the SAPS. The Court held that, at times, constitutional rights, in this case the right to dignity, life, freedom and security of the person, impose positive obligations which the state and all its organs must respect and fulfil. Metrorail and the Commuter Corporation enjoy, in effect, a monopoly over the provisions of rail commuter services. People in need of subsidised public transport often have the greatest distances to travel and are often the poorest, thus having little choice in deciding whether to use rail services or not. Hundreds of thousands of commuters use the rail services every day. Once commuters have boarded a train,

they cannot easily leave it while it is in motion, and this makes them intensely vulnerable to violent criminals for which they are the target.

The court issued a declaratory order to the effect that Metrorail and the Commuter Corporation have an obligation to ensure that reasonable measures are taken to provide for the security of rail commuters whilst they are making use of the rail transport services provided by them. Metrorail spokesperson, Daphne Keyster (2017), said: “Signal head cable theft at Thornton on Tuesday, and cable theft at Retreat on Wednesday, furthermore caused service disruptions with commuters experiencing additional travel times between 30 to 60 minutes on the Northern and Southern Line respectively.” Metrorail’s explanations as to why commuters in the Western Cape have to put up with severe delays and cancellations, which crippled operations previously, no longer appealed their commuters. Metrorail blames cable theft for the delays.

3.3 THE IMPACT OF COPPER THEFT IN SOUTH AFRICA

3.3.1 Politically

According to Gastrow (2001:1), the general state of unruliness has led to a widespread internal conflict, the continuation of civil war and political turmoil. The unstable environment is typical of a milieu in which criminal activity and organised crime, such as copper theft, flourish. Criminals tend to identify these circumstances as low-risk opportunities, and they profit from them. The South African Development Community (SADC) region has become the breeding ground for various organised crime syndicates. Impoverished states, plagued with weak leadership, brought about this unfortunate situation.

The conundrum faced by some freedom fighters, turned politicians, is the challenge of relying on legitimate and declarable sources of income to fund their political ambitions in a democratic environment. Many of these ‘new’ politicians do not have a strong sense of civic responsibility, nor do they have the will to contribute to the upliftment of their fellow citizens. This may lead to disassociation between the new leaders and their constituents, as well as increased susceptibility to corruption, the misuse of power and the abuse of their positions of trust – all of which are weaknesses that can be exploited by crime syndicates.

On 30 April 2015, President Jacob Zuma announced that Cabinet has approved a Bill that will help curb copper theft and any vandalism of infrastructure, because disrupting infrastructure will be regarded as a more serious crime. The President said these crimes hamper the supply of

electricity, which results in disruptions to train schedules and the supply of water, among other things. The President also said that this will contribute to the fight against the theft of copper, cables and metal from the country's infrastructure programme.

3.3.2 Socially

Sidebottom, Ashby and Johnson (2014:684-700) argue that a single incident can close a main railway line for several hours, thus disrupting thousands of passenger journeys and incurring huge financial costs. The replacement cost of metal is only a small portion of the overall cost of theft. Much more significant are the costs of disruptions to services caused by thefts (such as copper theft) and the labour costs associated with repairs, neither of which varies with metal prices. As described by The Civilian Secretariat for Police's Green Paper on Policing (2013:38), and the United Nations Office for Drugs and Organized Crime:

Transnational organized crime is considered as one of the major threats to human security, impeding the social, economic, political and cultural development of societies worldwide. It is a multi-faceted phenomenon and has manifested itself in different activities, among others, drug trafficking, trafficking in human beings, trafficking in firearms, and smuggling of migrants, copper theft and money laundering.

3.3.3 Economically

According to Sidebottom et al. (2014), fluctuations in the price of metal are associated with changes in the volume of metal theft. Specifically, we analyse the relationship between the price of copper and the number of police recorded 'live' copper theft from the British railway network (2006 to 2012). *Method:* Time-series analysis was performed using 76 months of data in order to determine the association between the average copper price and police recorded 'live' copper theft. Two rival hypotheses, that changes in the theft of copper cabling reflect changes in the theft of railway property more generally (or the reporting thereof) or variations in the rate of unemployment, were also tested. *Result:* We find support for the price-theft hypotheses: Changes in the price of copper were positively associated with variations in the volume of 'live' copper theft. A common interpretation of this finding is that general increases in the price of metals experienced in the past decade have made this type of crime more attractive to thieves. Phakathi (2010:1) makes a bold statement to the effect that the cumulative damage to the economy of this country, its organizations and its individuals, is staggering. Phakathi further states that the previous Enterprise Minister, Barbara Hogan, said that copper theft was so rampant

that it costs the South African economy approximately seven billion rand a year. In addition, BACSA suggested that this could be attributed to the dramatic increase in copper and aluminium prices as a result of the rapidly growing demand for these materials. In 2008, the estimated direct cost of copper theft in South Africa was already R500 million a year. However, the estimated indirect cost of copper theft to the economy was ten times higher than the expenditure required replacing these cables. Phakathi (2010:1) highlighted that the Democratic Alliance (DA) stated that, since 2010, South Africa has lost approximately seven billion rand per year as a result of copper theft. Planting (2011:1) states that copper theft costs the South African economy an estimated ten billion rand per year. Planting emphasises that, with our national growth limping along at 3% and national debt set to balloon, this problem clearly cannot remain unresolved as it can implode and destroy the country's fragile economy. According to ALLAFRICA.COM (2012:1), Eskom and Transnet have, since 2006, collectively lost R1.2 billion through copper theft. This is echoed by Telkom who indicated that the entity had lost R1.9 billion just in repair and replacement costs, due to theft that took place between 2006 and 2011.

The increasing concern regarding the impact that the cost of copper theft has on the economy, has prompted the SACCI to develop a barometer that will measure and monitor the extent of copper theft in the country on a monthly basis. Their objective is to create a general awareness of the problem and to engage public participation in combating copper theft (Southern African Revenue Protection Association (SARPA), 2011:1). However, the SACCI Barometer only addresses the estimated 'replacement' cost of copper cable stolen from major users, such as Telkom, Eskom and Transnet (SARPA, 2011:1). Since the SACCI copper theft barometer is the only valid and reliable source that publishes these damages publicly, the researcher considered it an important tool with which to identify tendencies and to give possible explanations regarding the phenomenon of copper theft. Peggy Drodskie, executive advisor to the South African Chamber of Commerce and Industry, indicated that there seems to be a definite link between the international price of copper and copper theft (Arendse, 2011:1). Cross (in Planting, 2011:1) reports that the Chairman of the Copper Producers' Association stated the following: "The consistently high price of copper makes it a valuable commodity for illicit business, and what drives the price up is massive demand from China and India, whose urbanizing economies are voracious consumers of copper". According to Leedy (2011:1), South Africa had no choice but to confront the problem, a worldwide one, head on. Geldenhuys (2010:1) elaborates on this point by stating that there have been massive increases in cable theft over the past year, primarily due to the fact that the price of copper has tripled in recent years. According to Sidebottom et al.

(2014), crime is considered more likely if the anticipated rewards outweigh the expected risks and effort. The rewards gained from successfully committing a crime can take many forms, and they range from the accumulation of assets to psychological satisfaction. However, despite this diversity, much acquisitive crime is considered to be motivated by financial gain. Metal prices are an example of a macroeconomic environmental factor that might influence offender decision making. From a crime opportunity perspective, all things being equal, increases in the price of metals would be expected to make the theft of metal more attractive; this should, in turn, lead to an increase in the frequency of metal theft.

Van den Berg (2004:2) states that the illegally obtained product (such as copper cable) is then given a legitimate veneer by mixing it with legally obtained non-ferrous metal and selling it to larger recycling plants or smelters. In both instances, the outcome remains the same: stolen copper cable is recycled back into the legitimate market. The scrap metal recycling industry in South Africa is, currently, not effectively controlled by the state, nor is it self-regulating. The lack of control over the industry has led to the criminal exploitation of law-abiding metal merchants and the scrap metal industry. According to McWhirter (2007:1-2), international criminal scrap metal dealers, it is thought, sell the recycled metal to markets such as China, as well as India and other parts of Asia, where there is unprecedented industrial growth and a demand for building materials. Non-ferrous metal, copper in particular, is in high demand.

3.4 STRATEGIES TO INVESTIGATE COPPER THEFT IN SOUTH AFRICA

Gilbert (2006:57-58) points out that forensic investigators must be capable of recognising evidence and establishing whether said evidence will be legally admissible in a criminal trial. Van Rooyen (2008:57) states that evidence that is collected in a manner that violates any law or right of the accused person must be excluded if the admission of the evidence would render the trial unfair, or otherwise be detrimental to the administration of justice. Van Niekerk (2015) is of the view that the cell phone industry is growing each year and millions of people worldwide possess a cell phone. Some of these people are involved in criminal activities; copper theft would be an example of such, which means that cell phones, with their advanced capabilities, hold evidence related to criminal activity. The activation of cell phone activity is contained on a cell phone record, and, when such information is analysed it becomes intelligence, which has a positive impact on copper theft investigation. This information from the cell phone record will give direction to the forensic investigator and further guides the investigation.’ Until the end of the sentence

According to Ainsworth (2001), there are four main approaches used to link an offender to a copper theft crime scene:

- The geographical approach, in which patterns are analysed in regard to timing and location of the crime scene in order to determine where the offender lives and works.
- The investigative psychology approach, which focuses on the psychological theories of determining the characteristics of an offender by looking at the presented offending behaviour and style of offence.
- The typological approach, which looks at the specific characteristics of the crime scene to, then categorizes the offender according to the various ‘typical’ characteristics.
- The clinical approach to offender profiling, in which an understanding of psychiatry and clinical psychology is used to determine whether the offender is suffering from mental illness or various psychological abnormalities.

The general knowledge, lifestyle and method used by the offender will help forensic investigators to determine pro-actively where the offender lives and works. The researcher has found that the techniques must be interlinked with the following: identification, forensic intelligence, fingerprints, elements of the crime, as well as information and evaluation of financial statements, with a strong integrated approach to previous cases of copper theft at the national level. This will enhance the strategy to prevent copper theft in South Africa.

3.4.1 Non-Invasive Detection and Chemical Mapping of Trace Metal Residues on the Skin

According to a study conducted by Bleay, Grove, Kelly, King, Mayse, Shah and Wilson (2014), on non-invasive detection and chemical mapping of trace metal residues on the skin, residual traces of the metals copper and lead on an individual’s skin may be elucidated by reaction of rabbinic acid with a gelatine lift taken from the target area in question, yielding intensely coloured reaction products. This non-invasive technique has been shown to offer promise in chemically mapping the distribution of the minute metal residues across an individual’s hand deposited through touching metal items, a technique with potential forensic significance. The work of these authors focussed on the uniqueness of lead metal samples from church roofs, in a manner that would ideally provide intelligence as to the origin of any seized materials during investigation.

An important concept that have not been investigated thoroughly within the discipline, however, is the notion of directly analysing the skin (hands) of a detained individual (suspect) for evidence pertaining to their recent activities during copper theft. For example, field test kits exist that go some way into the detection of gunshot residue (GSR) and some forms of narcotic drugs from an individual's hands or clothing, however, in such cases evidence is gathered via swab collection, thus limiting the precision of attempts to accurately map out the distribution of the material in question (i.e. copper cable). Such mapping has the potential to add important strands to the forensic evidence associated with the case. Thus, in the example of metal theft, confirming the presence of metal traces on a suspect's hands would be only one desirable feature of the analysis; mapping its presence and distribution would prove an important adjunct, capable – in some scenarios at least – of linking the suspect to individual items.

3.4.2 Anatomy, Geometric Morphometric (Electrocuted Bodies during copper theft)

According to Maass (2016) in her email message, the biggest challenges with Physical Security Professional (PSP) and SAPS is that they generally do not see decomposed remains (which no longer look human to the lay person) in the same light as recently deceased individuals. As such, the decomposed remains are not treated with as much care or seen as an important source of potential evidence. Maass (2016) further states:

In our interactions with SAPS, the problem seems to lie in their Standard Operating Protocols (SOP's). At several occasions, we have done presentations to groups of SAPS members (usually as a small break in their basic training) to inform them of the kind of information we are able to obtain from skeletal remains. The attending SAPS officers are always very receptive in our input, but state that their SOP's do not stipulate special protocols for the collection of burnt or damaged remains. This usually results in either PPS or SAPS simply collecting whatever is obviously human skeletal material (and sometimes not even most of what is there) and placing everything in a body bag or cardboard box. Normally, if the body is not too badly damaged or scattered, this method is not as problematic. However, when the bones are burnt or otherwise damaged, special recovery techniques may be required to preserve the bones for collection and transport without further damage.

It is important to emphasise, here, specifically in relation to copper theft cases in which there is high voltage (11 000 volts) electrocution, the body of the offender, the skeleton, must not simply be removed in a box or body bag. Instead, the Forensics Science Laboratory (FSL) should be

contacted to attend the scene for purposes of forensic investigation. In this regard, Maass (2016) states:

During the assessment, we would firstly work on establishing a biological profile of the individual. We examine specific areas of the bones for information allowing us to estimate demographic information such as sex, age and ‘social’ race (what race the person’s peers would have reported him as in life). The accuracy of our estimation depends on several factors such as which parts of the body are present and complete enough to allow observation, what the person’s health condition was, whether they had any age-related diseases that may influence the bones, etc. The next step in our analysis is to look for individualizing features such as stature, signs of disease or traumas that occurred before the individual’s death, etc. We will also be able to form an opinion on possible damage that occurred after the individual’s death, and may sometimes be able to broadly describe what kinds of weapons, if any, were involved in creating the observed damage.

3.4.3 Description and identification of stolen property

Osterburg and Ward (2010:7) argue that the description and identification of stolen property is an important aspect of an investigation and may later be critical to establishing ownership. Stolen property may turn up at a pawnshop, in the hands of second-hand dealers or for sale on the Internet. The ability to establish makes and models, serial numbers, or other distinguishing characteristics of an item can make a significant contribution to the success of the investigation. Pawnshops are common locations for stolen property to reappear, and forensic investigators should be familiar with the record keeping of, and reports related to, these locations.

The Second-Hand Goods Control Act, 6 of 2009, specifically in Section 28(1) and Section 28(2) (South Africa, 2009), mandates the SAPS to check compliance at dealers during routine inspections in normal working hours. This is where forensic investigators can enhance their skills and verify particular elements during forensic investigation. According to Van der Watt (in Zinn & Dintwe, 2015:178), the constitutional framework should always be borne in mind during every aspect of forensic investigation and should guide investigative decision making. The Bill of Rights (Chapter 2 of the Constitution) is viewed as the cornerstone of democracy in South Africa; it affords every person the right to equality, human dignity, life and freedom of security of their person, among other things. However, Section 36 of the Constitution (Limitation of Rights), also referred to as the Limitation Clause, and provides for the limitation

of these rights to the extent that the limitations are reasonable and justifiable. Actions by investigators, at the scene of the incident, which violate these rights or misconstrue the provisions of Section 36, will be judged harshly. Section 35(5) of the Constitution clearly indicates that evidence obtained in a manner that violates any right in the Bill of Rights will be deemed inadmissible.

3.4.4 Back to basics approach

Section 3(1) of the Criminal Matters Amendment Act, titled 'New Offence' (South Africa, 2015), creates a new offence by criminalizing the unlawful and intentional tampering with, damaging or destruction of essential infrastructure. It provides for the possibility of the imposition of a severe penalty, namely, imprisonment for up to 30 years or, in the case of a corporate body, a fine not exceeding R100 million. Situational crime prevention is a difficult concept to understand or use in the fight against copper theft. In its most simplistic form it includes a wide range of practical measures intended to prevent copper theft from being committed. It combines everyday logical strategies regarding crime prevention into an executable range of measures that people can use to protect themselves and their property (National Crime Prevention Centre, 2006:1).

The basic theory behind situational crime prevention is based on three principles: crime would be prevented if the opportunity for crime to be committed is reduced; if the risk of being detected is increased; and if the rewards of the crime are reduced (Crawford, 2002:6). According to The John Howard Society of Alberta (1995:19), crime prevention strategies can generally be divided into two distinct categories: situational crime prevention and prevention by means of social development. In the case of situational crime prevention, the aim is to reduce the total number of opportunities that offenders are afforded to commit crime (such as copper theft). This is usually achieved through effective law enforcement and the institutionalisation and correction of offenders, combined with an increase in personal and property security. The goal of this process is to reduce the attractiveness of a specific area or premises for the commission of a crime. The process of increasing physical security is also called 'target hardening'. Waller, Welsh and Sansfacon (1997:3) argue that crime prevention can be summed up as 'anything that reduces delinquency, violence and insecurity by successfully tackling the scientifically identified casual factors.' In addition, Lab (2010:26) theorises that crime prevention is 'any action designed to reduce the actual level of crime and/or perceived fear of crime.'

Crime can undoubtedly be linked to the place where it is committed, according to the findings of Landman and Lieberman (2005:21). They concluded that many instances of crime do not occur spontaneously or opportunistically, but that offenders select specific areas because they lend themselves to criminal activity. Over time, the development of residential business property has, therefore, changed to incorporate more security considerations (White, 1996:106). In most instances, it is difficult and expensive to change the structural design of an existing structure in order to be more secure. However, several relatively inexpensive 'target-hardening' measures can be implemented to reduce the attractiveness of the target for criminals. For example, security cameras can be installed everywhere. External measures such as burglar proofing, security gates, high fences and access control points can reduce the risk of being targeted by opportunistic criminals (United Nations Office on Drugs and Crime, 2009:21).

3.5 CONCLUSION

Copper theft in South Africa is escalating. This crime is carried out by syndicates and has a major impact economically, socially and politically. Every method and technique available to the SAPS to understand the dynamics of copper theft in South Africa, and in the identification of suspects in a copper theft case, should be utilised by investigators to solve these crimes. The mistakes made by the suspects must become the investigators' strong-point in order to prove each case beyond a reasonable doubt, in a court of law. The continuous and well-planned attacks on vulnerable infrastructure exposed the vulnerability of copper cable.

CHAPTER 4 SUMMARY, RECOMMENDATIONS AND CONCLUSION

4.1 INTRODUCTION

The researcher examined the significance of MO information in copper theft investigation. To enhance the effectiveness of copper theft investigation, it is of utmost importance that investigators recognise the significance of, and become familiar with, MO information in copper theft investigations. This chapter summarises the dissertation from Chapters 1 to Chapter 3, after which the relevant conclusions and recommendations are made based on the findings discussed in Chapter 2.

4.2 SUMMARY

Chapter 1 presented a general overview of the study. The chapter commenced with the comprehensive identification and substantiation of the research problem. Emanating from the identified problem statement, the aim, purpose and research question of the study were presented and contextualised.

The purpose of this study was:

- To describe how forensic investigators utilise MO information in the investigation of copper theft.
- To explain why forensic investigators who investigate copper theft do not optimally utilise MO information.

Subsequently, the following primary research question was explored:

- What is the significance of MO information in copper theft investigations?

The selected target population and sample drawn for the study were identified. This was followed by a discussion of the research methodology employed in this study. This chapter concluded with a delineation of the ethical considerations of the study.

Chapter 2 provided an overview of *modus operandi* information in forensic investigation. The chapter commenced with a brief overview of the legislation governing copper theft in South Africa. The chapter then discussed various dynamics related to MO information; this included a discussion of the value of MO information in forensic investigation, MO as an element of

criminality, an offender's MO behaviour, and factors that could influence an offender's MO. In addition, the findings derived from the semi-structured interviews were presented and integrated into a discussion of the relevant literature.

Chapter 3 presented an overview of copper theft in South Africa. Particular attention was given to the nature and extent of copper theft, as well as the impact of this crime on the social, economic, and political front. In addition, the chapter focussed on strategies used to investigate copper theft.

4.3 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made:

- A skills audit should be carried out amongst detectives at the SAPS in Philippi East, in the Nyanga policing cluster of the Western Cape, in order to establish the challenges and shortcomings experienced during the investigation of copper theft. In addition, a strategic skills development plan should be implemented with immediate effect, with particular focus on training (in-service or external) in the investigation of copper theft and MO information.
- Detectives at the SAPS in Philippi East should be empowered with enhanced skills and knowledge to realise the significance of MO information in the investigation of copper theft. These detectives should further be empowered with sufficient knowledge and technology to gather, evaluate and analyse MO information for utilization in copper theft investigations.
- All relevant stakeholders, including parastatals and the SAPS, should strengthen cooperative relationships, by means of a Memorandum of Understanding. This will promote and establish information-sharing networks in realisation of the effective and optimal use of MO information in the investigation of copper theft.

4.4 CONCLUSION

The research design and methodology followed in this study enabled the researcher to sufficiently address the research aim, purpose and research question of the study. The significance of MO information in copper theft investigations was examined and illustrated by means of a comprehensive literature review, which was enhanced by the integration of empirical

evidence. Should the SAPS and the relevant role-players consider the implementation of the recommendations made in this study, the significance of MO information in copper theft investigations could be realised amongst detectives at the SAPS Philippi East. Furthermore, the MO of copper thieves could be established and case linkages could be made, increased arrests could be affected, and networks could be established amongst role-players to enhance communication and share MO information of copper thieves.

This examination of the identified research topic consequently makes clear the significance of MO information in copper theft investigations. The significance of MO information during copper theft investigations is illustrated and verified by the outcomes of the research, as demonstrated by the emergent themes pointed out in the study. Copper theft involves organised syndicates that have a significant impact economically, socially and politically. A thorough understanding of the significance of MO information in copper theft investigations could empower investigators with an improved understanding of suspects' methods of operation, execution of the crime, as well as the habits and profiles of suspects pro-actively. The prevention and successful investigation of copper theft will also re-establish community trust in the SAPS.

LIST OF REFERENCES

- Ainsworth, P.B. 2001. *Offender profiling and crime analysis*. Portland: Willan Publishing.
- ALLAFRICA.COM. 2012. South Africa: Eskom and Transnet need a plan to stop copper theft. From: <http://allafrica.com/stories/201203221180.html> (accessed 29 August 2017).
- Amisi, B. B. 2009. Between home's rock and South Africa's hard place: non-nationals' experiences, livelihood strategies, and choice to remain in post-2008 South Africa. *Synopsis*, 10(3):28.
- Arendse, N. [n.d.]. Copper theft prevention: An analysis of current strategies in place to address the scourge From: http://sarpa.co.za/Websites/sarpa/files/Content/6397723/Neil_Arendse_-_Copper_Theft_Prevention_final_report.pdf (accessed 7 August 2017).
- Arendse, N. 2011. Copper theft prevention: Level of collaboration amongst role players. From: <http://eepublishers.co.za/article/cityofct-274-08-copper-theft-prevention-an-analysis-of-the-level-of-collaboration-amongst-agencies-in-cape-town.html> (accessed 2 August 2017).
- Bennett, W.W. & Hess, K.M. 1981. *Criminal investigation*. St Paul: West.
- Bennett, W.W. & Hess, K.M. 2004. *Criminal investigation*. (7th edn.). Belmont, CA: Wadsworth/Thomson Learning.
- Bleay, S.M., Grove, L.E., Kelly, P.F., King, R.S.P., Mayse, K, Shah, B.C., & Wilson, R. 2014. Non-invasive detection and chemical mapping of trace metal residues on the skin. *RSC advances*, 4(37): 19525-19528.
- Braun, V. & Clarke, V. 2013. *Successful qualitative research. A practical guide for beginners*. Thousand Oaks, CA: Sage.
- Burchell, J. 2006. *Principles of criminal law*. Cape Town: Juta.
- Business Live. 2011. Copper theft is crippling parastatals. From: <http://www.businesslive.co.za/Feeds/businesstimes/article1422586.ece> (accessed 19 June 2017).
- Civilian Secretariat for Police. 2013. Green Paper on Policing. From: <http://pmg-assets.s3-website-eu-west-1.amazonaws.com/130614greenpaperonpolicing.pdf> (accessed 18 July 2017).
- Creswell, J.W. 2013. *Qualitative inquiry & research design: Choosing among five approaches*. Thousand Oaks, CA: Sage.
- Crawford, A. 2002. *Crime prevention and community safety: politics, policies and practices*.

- Longman Criminology Series*. Harlow: Pearson.
- De Vos, A.S., Strydom H., Fouché, C.B. & Delport, C.S.L. (eds). 1998. *Research at grass roots: for the social sciences and human services professions*. (2nd edn.). Pretoria: Van Schaik.
- De Vos, A.S., Strydom, H., Fouche, C.B. & Delport, C.S.L. (eds). 2005. *Research at grass roots: for the social sciences and human services professions*. Pretoria: Van Schaik.
- De Vos, A.S., Strydom, H., Fouche, C.B & Delport, C.S.L. 2012. *Research at grass roots: for the social sciences and human services professions*. Pretoria: Van Schaik
- Denscombe, M. 2002. *The good research guide for small-scale social research projects*. Philadelphia: Open University Press.
- Douglas, J.E., Burgess, A.W., Burgess, A.G. & Ressler, R.K. 2006. *Crime classification manual*. (2nd edn.). San Francisco: Josey-Bass.
- Du Plessis, W.J. 1989. *Modus operandi* in misdadiger identifikasie. *Acta Criminologica*, 2(1):84.
- Evans, C. 2011. *Copper theft: A crime wave from history*. From: <http://historydivision.blogs.southwales.ac.uk/2011/06/08/147625/> (accessed 10 November 2015).
- Feni, Z. 2007. "Sue scrap dealers", Chamber of Commerce urges. *Cape Argus*, 27 June: 6.
- Flick, U. 2011. *Introducing research methodology: A beginner's guide to doing a research project*. London: Sage.
- Gastrow, P. 2001. Organised crime in the SADC Region: police perceptions. *Monograph*, 60. Cape Town: Institute for Security Studies.
- Geldenhuys, K. 2008. Non-ferrous metal theft brings cities to their knees. *Servamus Safety and Security Magazine*. From: http://www.telkom.co.za/general/cabletheft/metal_theft.html (accessed 13 August 2017).
- Geldenhuys, K. 2010. Reasons why non-ferrous crimes are not resolved. From: <http://www.telkom.co.za/general/cabletheft/Reasons.html> (accessed 16 October 2017).
- Gilbert, J.N. 2006. *Criminal investigation*. (7th edn.). New York: Prentice Hall.
- Goffman, E. 1974. *Frame Analysis. An essay on the organization of experience*. Harmondsworth: Penguin Books.
- Gray, D.E. 2014. *Doing research in the real world*. Thousand Oaks, CA: Sage.
- Hennink, M., Hutter, I. & Bailey, A. 2011. *Qualitative research methods*. Thousand Oaks, CA: Sage.
- Herbig, F.J.W. 2009. *The illegal reptile trade: a criminological perspective*. Unpublished Phd Thesis. University of South Africa: Pretoria.

- Hoffmann, N. 2008. Police bust seven alleged copper thieves. From: <http://www.zoutnet.co.za/details.asp?StoNum=6490> (accessed 14 June 2017).
- Innes, M. 2003. *Investigating murder: detective work and the police response to criminal homicide*. Oxford: Oxford University Press.
- Kerlinger, F.N. 1986. *Foundations of behavioural research*. (3rd edn.). Fort Worth: Harcourt.
- Kumar, R. 2011. *Research methodology: A step-by-step guide for beginners*. (3rd edn.). Thousand Oaks, CA: Sage.
- Lab, S. P. 2010. *Crime prevention: approaches, practices, and evaluations*. (7th edn.). New Providence, NJ: Matthew Bender.
- Labuschagne, G. 2015. Criminal investigative analysis: An applied perspective. In Zinn, R. & Dintwe, S. (eds.) 2015. *Forensic investigation: Legislative principles and investigative Practice*. Cape Town: Juta.
- Landman, K., & Liebermann, S. 2005. Planning against crime: preventing crime with people not barriers. *SA Crime Quarterly*, 11.
- Leedy, P.D. 1997. *Practical research: planning and design*. (6th edn.). Upper Saddle River, NJ: Merrill.
- Leedy, J. 2011. Copper theft reaching epidemic proportions. From: <http://stcroixsource.com/content/news/local-news/2011/08/15/copper-theft-reaching-epidemic-proportions> (accessed 3 September 2017).
- Le Roux, H. 2008. *Cable theft costs Telkom R836 million*. From: <http://www.engineeringnews.co.za/article/cable-theft-costs-telkom-r863m-2008-03-03> (accessed 12 September 2018).
- Lincoln, Y.S. & Guba, E. 1985. *Naturalistic inquiry*. Beverley Hills: Sage.
- Maass, P. (petra.maass.1211@gmail.com). 2016. Forensiese antropologie inligting [e-mail]. Private email message to A. Liebenberg (18 April 2017).
- Marais, C.W. & Van Rooyen, H.J.N. 1994. *Misdaadondersoek*. Pretoria: Promedia.
- Maree, K. 2001. *First steps in research*. Pretoria: Van Schaik.
- Marsh, I., Melville, G., Morgan, K., Norris, G. & Walkington, Z. 2006. *Theories of crime*. London: Routledge.
- McWhirter, C. 2007. Georgia Power, AC companies turn up heat on copper thieves. From: <http://criminal.lawyers.com/news-headline> (accessed 18 March 2017).
- M-Net. 2019. *The fightback against cable theft* [Carte Blanche]. 4 March 2019.

- Mogome, M. 2008. *Syndicates behind railway copper theft*. From: <http://www.iol.co.za/news/south-africa/syndicates-behind-railway-copper-theft-1.404139> (accessed 10 June 2017).
- Money Web. 2012. *Telkom blamed for cable theft crisis*. From: <http://www.moneyweb.co.za/mw/view/mw/en/page295027?oid=561544&sn=2009+Detail&pid=287226> (accessed 8 May 2017).
- National Crime Prevention Centre. 2006. *Crime prevention*. From: <http://www.publicsafety.gc.ca/prg/cp/index-eng.aspx> (accessed 13 September 2017).
- O’Leary, Z. 2014. *The essential guide to doing your research project* (2nd edn.). Thousand Oaks, CA: Sage.
- Osterburg, J.W. & Ward, R.H. 2010. *Criminal investigation: A method for reconstructing the past*. (6th edn.). New York: Routledge.
- Palmiotto, M.J. 2013. *Criminal investigation*. (4th edn). Boca Raton: Taylor & Francis.
- Pamla, S. 2015. *Criminal Matters Amendment Act long overdue – COSATU*. From: <https://www.politicsweb.co.za/politics/criminal-matters-amendment-act-long-overdue--cosat> (accessed 16 November 2017).
- Phakathi, B. 2010. *Drastic new steps to halt copper theft*. From: <http://allafrica.com/stories/201006220473.html> (accessed 9 November 2017).
- Planting, S. 2011. *Copper theft: government and big business unite to do battle*. From: <http://www.citizen.co.za/citizen/content/en/citizen/business-ews?oid=217606&sn=Detail&pid=146848&Copper-theft--government-and--big-business-unite-to-do-battle> (accessed 26 Augustus 2017).
- Ryder, N. 2011. *Financial crime in the 21st century: Law and Policy*. Cheltenham, UK: Edward Elgar.
- SARPA. 2011. *SACCI barometer tracks extent of copper cable theft*. From: <http://www.sarpa.co.za/journal/2011/2/1/sacci-barometer-tracks-extent-of-copper-cable-theft.html> (accessed 19 June 2017).
- Sidebottom, A., Ashby, M. & Johnson, S.D. 2014. *Copper theft: Revisiting the price-theft hypothesis*. *Journal of Research in Crime and Delinquency*, 51 (5): 684-700.
- Solomon, H. 1996. *Strategic perspectives on illegal immigration into South Africa*. *African Security Review*, 5(4).
- South Africa. 1977. *Criminal Procedure Act, 51 of 1977*. Pretoria: Government Printer.
- South Africa. 1996. *The Constitution of the Republic of South Africa 108 of 1996*. Pretoria: Government Printer.

- South Africa. 2009. Second-Hand Goods Control Act, 6 of 2009. Pretoria: Government Printer.
- South Africa, 2015. Criminal Matters Amendment Act, 18 of 2015. Pretoria: Government Printer.
- South African Police Service. 2015. *South African Police Service Annual Performance Plan of 2014/2015*. Pretoria: South African Police Service.
- The Free Dictionary*. 2003. s.v. "copper". From: <https://www.thefreedictionary.com/copper> (accessed 24 January 2018).
- The John Howard Society of Alberta. 1995. *Crime prevention through social development: a resource guide*. Alberta: The John Howard Society of Alberta.
- Thelwell, E. 2014. 4 things you didn't know about copper theft. *News 24*, 26 June. From: <https://www.news24.com/SouthAfrica/News/4-things-you-didnt-know-about-copper-theft-20140626> (accessed 18 January 2018).
- Thio, A. 2007. *Deviant behaviour*. (9th edn.). Boston: Pearson/Allyn and Bacon.
- Turvey, B.E. 2002. *Criminal profiling*. London: Academic Press.
- Turvey, B.E. 2012. *Criminal profiling: An introduction to behavioural evidence analysis*. (4th edn.). Oxford: Elsevier.
- United Nations Office on Drugs and Crime. 2009. *Handbook on planning and action for crime prevention in Southern Africa and the Caribbean regions. Criminal Justice Handbook Series*. New York: United Nations.
- Van Dalen, P. 2009. Combatting non-ferrous metal theft: the City of Cape Town story. From: <http://www.eepublishers.co.za/view.php?sid=18829> (accessed 27 September 2017).
- Van den Berg, L.L. 2004. *Yearly overview by L.L. van den Berg, Chairman of the NFTCC*. NFTCC information letter.
- Van der Watt, M. The preliminary investigation phase. In Zinn, R. & Dintwe, S. (eds.) 2015. *Forensic investigation. Legislative principles and investigative practice*. Cape Town: Juta.
- Van der Westhuizen, J. 1996. *Forensic criminalistics*. (2nd edn.). Johannesburg: Heinemann.
- Van Niekerk, A. 2015. *The analysis of a cell phone record as a source of intelligence in the investigation of copper cable theft*. Unpublished MA dissertation, University of South Africa, Pretoria.
- Van Rooyen, H.J.N. 2008. *The practitioner's guide to forensic investigation in South Africa*. Pretoria: Henmar Publications.
- Venter, I. 2008. *How copper theft is ruining the economy and what's being done about it*. Engineering News. From: <http://www.engineeringnews.co.za/article/how-copper-theft-is->

ruining-the-economy-and-whats-being-done-about-it-2008-08-29 (accessed 20 March 2018).

- Waller, I., Welsh, B. C., & Sansfacon, D. 1997. *Successes, benefits and directions from seven countries. Crime Prevention Digest*. Montreal: International Centre for the Prevention of Crime.
- Welman, C., Kruger, F. & Mitchell, B. 2005. *Research methodology*. (3rd edn.). Cape Town: Oxford University Press.
- White, R. 1996. Situating crime prevention: models, methods and political perspectives. In R. Homel (ed.). *Politics and practice of situational crime prevention*. Monsey: Criminal Justice Press/Willow Tree Press.

APPENDIX A: SAPS LETTER OF APPROVAL

SOUTH AFRICAN POLICE SERVICE



SUID-AFRIKAANSE POLISIEDIENS

INFORMATION NOTE

REF NO : 25/7/2/1(201400141)
DATE : 01 July 2014
TO : The Provincial Commissioner:
South African Police Service
WESTERN CAPE
FROM : The Provincial: Commander
Strategic Management
WESTERN CAPE

Compiled by: SAC Hoko

VIOLENCE BEGETS VIOLENCE: EVALUATING THE SIGNIFICANCE OF MODUS OPERANDI AS TECHNIQUE IN FORENSIC INVESTIGATION OF COPPER THEFT:UNISA: RESEARCHER: LT COLONEL LIEBENBERG

1. A request was received from Lt Colonel Liebenberg, who is a registered part time student at University of South Africa.
2. The aim of the research is to evaluate the significance of Modus Operandi as a technique in the Forensic Investigation of Copper Theft with specific focus on the different levels of suspects in a Copper Theft cases.
3. The applicant's proposal has been perused and evaluated and recommended by Head of Strategic Management, Pretoria.
4. Lt Colonel Liebenberg has indicated that the interview will be conducted at Phillipi East Police Station and snowball sampling will be conducted into a population group of 25 detectives, with a specific focus on the interlinking with other Clusters or hot spots.
5. **RECOMMENDATION**
 - 5.1 A comprehensive list of questions on which the interviews will be based has been attached with the application, perused and recommended by this office.
 - 5.2 According to the research proposal a questionnaire study will be conducted with members at the stations identified in paragraph 4 above.

APPENDIX B: UNISA ETHICS APPROVAL



COLLEGE OF LAW RESEARCH ETHICS REVIEW COMMITTEE

Date: 26/07/2016

Reference: ST 10

Applicant: A. Liebenberg

Dear A. Liebenberg
(Supervisor: Prof. van Graan)

DECISION: ETHICS APPROVAL

Name	A. Liebenberg
Proposal	Examining the significance of modus operandi information in copper theft investigation
Qualification	MTech

Thank you for the application for research ethics clearance by the College of Law Research Ethics Review Committee for the above mentioned research. **Final approval is granted.**

The application was reviewed in compliance with the Unisa Policy on Research Ethics.

The proposed research may now commence with the proviso that:

1. *The researcher will ensure that the research project adheres to the values and principles expressed in the Unisa Policy on Research Ethics which can be found at the following website:*

http://www.unisa.ac.za/cmsys/staff/contents/departments/res_policies/docs/Policy_Research%20Ethics_rev%20app%20Council_22.06.2012.pdf

2. *Any adverse circumstances arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the College of Law Ethical Review Committee.*



University of South Africa
Pretorius Street, Muckleneuk Ridge, City of Tshwane
PO Box 392, Unisa, 0003, South Africa
www.unisa.ac.za/home

APPENDIX C: CONFIRMATION LETTER: LANGUAGE EDITING



PO Box 77000, Nelson Mandela University, Port Elizabeth, 6031, South Africa mandela.ac.za

05 October 2017

To Whom it May Concern

I herewith confirm that I have proofread the following dissertation:

Title of Study: *EXAMINING THE SIGNIFICANCE OF MODUS OPERANDI
INFORMATION IN COPPER THEFT INVESTIGATION*
Student Name: André Sarel Liebenberg
Student Number: 37557203
Institution: University of South Africa (UNISA)
Qualification: MAGISTER TECHNOLOGIAE (FORENSIC INVESTIGATION)

I suggested relevant changes, where I saw fit, using the "Track Changes" function in MSWord; the student could thus either accept or reject the suggested changes at his own discretion.

I trust that this is in order.

Kind regards,

A handwritten signature in blue ink, appearing to read "Nancy Morkel".

Nancy Morkel

MA English (NMMU), PGDHET (UFH), BA Hons English (UPE), BA MCC (UPE)
Editing Methodology (SU), Editing Practice (SU)
nancy.morkel@mandela.ac.za